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ABSTRACT

In this special issue on technology in language teaching, major articles include: "Sociocultural Aspects of Second Language Acquisition" (David Nunan); "The Need for Multi-Media ESL Teaching Methods: A Psychological Investigation into Learning Styles" (Don W. Hinkelman, Jay M. Pysock); "Can Japanese Children Learn English?" (David Paul); "Concordancing in the Language Classroom" (Irene F. H. Wong, Dorothy Cheung, Lai Phooi Ching); "Jigsaw: Cooperative Learning for EFL Students" (Anita Lie); "Education and CAI (Computer Assisted Instruction)" (P. L. Knowles); "Application of Speech-Recognition Technology to Language Instruction" (Dimitry Rtischev); "A Glimpse of the Virtual Future" (Macey B. Taylor); "Look Who's Talking: A Computer-Assisted System for Discourse Analysis" (Karen Price); "Integrating Video into Teacher Education" (Susan Stempleski); "Teacher Training Videotapes for TESOL" (Dean Brodkey); "Using Computers in Language Testing" (J. D. Brown); and "A Review of 'Computers in Applied Linguistics and Language Teaching: A CALL Handbook'" (Paul A. Cunningham). Additional book reviews, publications notices, and professional announcements are included. (MSE)

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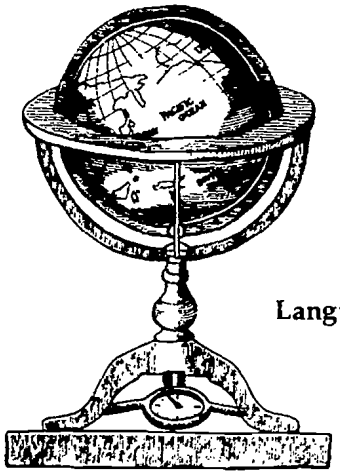

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ABOUT CROSS CURRENTS

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ABOUT THIS ISSUE

In *Cross Currents'* lead article, "Sociocultural Aspects of Second Language Acquisition," page 13, David Nunan examines the current state of SLA and classroom research, and provides possible new directions for the future.

In "The Need for Multi-Media ESL Teaching Methods: A Psychological Investigation into Learning Styles," page 25, authors Don Hinkelman and Jay Pysock explore how different learning styles are addressed by various classroom methods, and how a better understanding of student learning styles can assist the teacher in making important methodological choices for the classroom.

In our third article, "Can Japanese Children Learn English?" page 37, David Paul takes a critical look at how many teachers teach English to Japanese children and offers some provocative alternatives.

In our fourth article, "Concordancing in the Language Classroom," Irene Wong, Dorothy Cheung, and Lai Phooi Ching detail their experiences with an exciting new development in CALL, that makes good use of the computer's power to deal with large amounts of information. Their article begins on page 41.

We have only one Bright Idea in this issue of *Cross Currents*, contributed by Anita Lie and starting on page 49. In it she gives a detailed description of the many uses of jigsaws in the language classroom. It is an excellent introduction for teachers unfamiliar with the technique and a stimulating review for those who have used it in the past.

With this issue, we conclude our series of forums on special issues in language teaching. Our forum on "Technology in Language Teaching" begins on page 55 with an article by Lance Knowles on issues in education and computer-assisted instruction. He outlines some of the dangers and recent misdirections in CAI and provides a framework for future develpments.

In "Application of Speech-Recognition Technology to Language Instruction," page 64, Dimitry Rtischev offers a clear and nontechnical description of the state-of-the-art of speech-recognition technology and some of the possibilities it offers language teachers.

Macey Taylor gives an exciting glimpse of the fantastic possibilities offered language teachers by new advances in Virtual Reality. Her article, "A Glimpse of the Virtual Future," appears on page 69.

In "Look Who's Talking: A Computer-Assisted System for Discourse Analysis," page 73, Karen Price describes a remarkably simple computer system for analysing classroom interaction.

In her article, "Integrating Video into Teacher Education," page 80, Susan Stempleski puts a different focus on the use of technology by demonstrating how to use video in teacher education.

In "Teacher Training Videotapes for TESOL," page 84, Dean Brodkey examines the uses of pre-recorded videotapes for teacher training, and describes the contents of a bibliography of teacher-training videotapes.

In his second contibution to *Cross Currents*, J. D. Brown details the uses of computers in language testing. His article starts on page **92.**

The forum concludes with a a review by Paul Cunningham of *Computers in Applied Linguistics and Language Teaching: A CALL Handbook*. Here he gives a critical overview of the book and descibes some problems and possibilities for the future of CALL.

We hope you enjoy this special focus issue of *Cross Currents*. This is my final issue as editor of *Cross Currents*. I would like to thank everyone without whom the last few issues would have been impossible.

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LETTERS

Do Students Want What They Need?

Tevor Sargent
Tottori University

Widdows and Voller's survey of the ELT needs of Japanese university students (*Cross Currents*, 18(2), pp. 127-141) was insightful, informative and useful. However, their conclusion seems a little premature. They assert, "Thus it is clear that the great majority of university English classes are failing to satisfy learner needs in any way" (p. 135). However, the evidence presented in the survey does not support such a sweeping statement. This can be shown not by defending the status quo; rather, by putting this study into proper perspective. The aim here is not to criticize this study and its direction *per se*; on the contrary, the aim is to encourage expansion and development of this important and overly-neglected area. The goals of this study—to show students' attitudes, needs and interests—are considerable indeed and require equally considerable means.

As Widdows and Voller point out, Hutchinson and Waters (1987) stress the importance of making teachers and administrators aware of learner needs. Significantly, Hutchinson and Waters go on to describe the term "target needs" as "something of an umbrella term which in practice hides a number of important distinctions. It is more useful to look at the target situation in terms of *necessities*, *lacks* and *wants*" (p. 55). Widdows and Voller's survey does justice to the *wants* of students but not to the *necessities* and *lacks*.

While reviewing different models of needs assessment, McKillip (1987) states that, "The *discrepancy model* is the most straightforward and widely used, especially in education. The *marketing model* is new to the human services and education, but will probably gain favor with continued budget restrictions and increased emphasis on the wants of consumers." (p. 20). The *discrepancy model* tends to depend upon experts to identify and assess needs, while the *marketing model* makes use of feedback from the target population. Clearly, Widdows and Voller's survey is of the marketing orientation. In the marketing model, according to McKillip, "Need analysis is a process of identifying and choosing among services for which target populations are willing to trade something the agency values. *Needs are wants*" (p. 23, emphasis added).

Discussing the process of identifying the nature of learner needs, Mackay (1978) suggests, "In order to design and teach effective courses, the teacher and planner must investigate the uses to which the language will be put" (p. 21). Robinson (1980) likewise stresses the future use of the language by learners in compiling a profile of learner needs to later convert into a syllabus (p. 30). When Hutchinson and Waters state, "If learners, sponsors and teachers know why the learners need English, that awareness will have an influence on what is acceptable as reasonable content in the language course" (p. 53), it is difficult to imagine they are referring exclusively to the *wants* of learners given their discussion of the expression "target needs" as an umbrella term above.

On the issue of *wants* and *needs*, McKillip notes that "A drawback for the use of wants in human services and education is that competitive markets for programs often do not exist. Client costs are subsidized and *the ability of*

consumers to make judgements in their own best interests is often questioned" (p.16, emphasis added). Perhaps Widdows and Voller's study provides us with an example of this occurring. They discovered that "Students feel English is important for their careers, but mastering business English while at university is less so" (p. 132). In other words they know they will *need* to use English in their future careers, yet they do not *want* to specifically prepare for that event just now.

What does this distinction between *wants* and *needs* mean for universities? Should they cater to what students prefer, or prepare them for what they will be required to do in the future? Obviously, the situation does not demand quite such an either/or choice. In the ESL/EFL field, Richards and Rodgers (1986) and Nunan (1989) emphasize the *wants* of learners in their discussions of needs analysis. Indeed, learner-centered classroom procedures and the relevance of learner-affect in foreign and second language learning are well documented in the literature, and do not need to be reviewed here. Nor is the importance of student preferences being question here. Students who are studying what they want will undoubtedly be more motivated and probably more successful. However, success in what they want to do does not automatically translate into success in what they will be *required* to do.

Hutchinson and Waters place greater emphasis on learner wants than Robinson and Mackay—who were writing some seven to ten years earlier—reflecting the greater respect accorded learners these days. Yet, they do not go so far as to advocate replacing student needs with student *wants*. Along these same lines, McKillip appears to be warning against relying too heavily on the *wants* of learners when he states, "The question of whether a wanted service 'solves a problem' is rarely raised" (p. 16).

The EFL/ESL field has been swinging from one extreme to another for most of this century. Changes and developments are inevitable and important and should find a place in the language classroom. The recent moves toward learner-centered procedures is no exception. However, it is possible in an effort to better serve students to unwittingly ask them to play a role which demands too much of them. For example, perhaps it is unreasonable to expect students to be fully informed on exactly what situations they are most likely to encounter English once they enter the work force. To illustrate this point, let us return to our students who are aware of their need for business English, though they are not particularly willing to prepare for that need at university. Are they aware of the specific nature of that need? In 1990, The Japan Association of College English Teachers published "A General Survey of English Language Teaching—College Graduates Views." They found that "Of the 2,312 respondents, 78.8% said they had some connection with English, and among those people 54.2% said that this connection was 'at work'. While a fairly large number of people said that the English they use in their job or in daily life comes in the form of writing and reading (33.8%), a comparatively small number (14.7%) said that they use listening or speaking skills" (p.72-73).

This result seems logical, in retrospect, given that these graduates reside in a world where the fax machine is now a well established means of communication. However, whether or not this explains the result above, the point is that it is unclear how many students are aware that college graduates are required to use written English more than twice as much as they are required to use oral English as this study suggests.

It is worth noting, nonetheless, that these same graduates "...when asked about what kind of classes they wished they had had, 75.1% answered 'classes stressing speaking' and 67.8% responded 'classes stressing listening'" (p. 73). One possible explanation to reconcile these seemingly incongruous findings is that the classes the students had on reading

more than adequately prepared them for their relatively greater need for written language skills after graduation, while they were woefully unprepared for their relatively lesser need for oral skills. If this were true we would have to deduce—counter to Widdows and Voller's conclusion stated at the beginning of this paper—that the great majority of university English classes actually satisfy learner needs in at least one very real way.

Whether this explanation is sustained or not by empirical investigation, however, the results of this study are sufficient to raise questions about the comprehensiveness of Widdows and Voller's study and its conclusions. It seems quite likely that the greatest use of English by university graduates will be reading and writing, with the use of oral skills coming a not-insignificant second. Widdows and Voller's survey, though, shows clearly that many students would like to be able to function well in English while abroad (though not for study purposes). Certainly this is a laudable goal and hopefully attainable to some degree through study at university. However, should this goal be given a degree of priority commensurate with student desire at universities? In a language school where the learner is the customer, a market oriented approach focusing exclusively on *wants* may be entirely appropriate; for universities though, the broader issue of what the students are being prepared for must also be addressed. Obviously there is potential for disagreement; as Hutchinson and Waters point out, "it is quite possible that the learner's views will conflict with the perceptions of other interested parties: course designers, sponsors, teachers" (p. 56).

This is not to suggest that teachers should avoid the potential for such disagreement by declaring themselves to be experts and then creating their goals according to their own opinions of what students need, without consulting them—along the lines of the purportedly more elitist *discrepancy model* discussed earlier. On the other hand this is also not to suggest that teachers abdicate their decision making responsibility and simply conform to their students' wishes. Rather, it is to suggest that it is up to teachers to come to terms with the reality of their situations and make the most of it. Criticism of the present situation is widespread. According to Hansen (1985) university programs lack conviction, effectiveness, direction. Within each department there is little incentive to discuss departmental goals, organization or evaluation. This situation gives rise to a "disjointed, even discordant series of courses linked nominally by the term 'English'" (p. 150). In an earlier report from JACET (1983), nearly 50% of college English teachers surveyed stressed that the major problems they face surround ambiguity towards the exact purpose of English language teaching.

Nearly 15 years ago, Imamura (1978) criticized the lack of distinction among the study of literature, language and language teaching. In at least some, if not many colleges, these criticisms are just as valid today. Nor are here any apparent signs of significant changes on a nationwide scale in the near future. In this climate of well publicized inertia it is unclear just who Widdows and Voller are addressing at the end of their report when they state that "Radical changes in the content of courses, and especially in the types of courses that are offered, and the systematic retraining of university EFL teachers in learner-centered classroom procedures are steps that must be taken, if teachers and administrators are seriously interested in addressing their student's needs" (p.135). While Widdows and Voller's closing statement seems to be "taking on the system," their greatest contribution is more likely to be their example to other teachers. Developing this survey and introducing innovations into their classrooms sets a fine example to others in the profession. Perhaps it is philosophically displeasing not to confront the system, but is it really necessary?

In many, if not most colleges, individual teachers have an enormous amount of au-

tonomy over what happens inside the classroom. This latitude presents a superb opportunity for research and experimentation. Designing courses which actually meet student needs becomes a real possibility and in this climate of optimism, Widdows and Voller make a welcome contribution. But for their survey to fully live up to its name, PANSI (Profile of Attitudes, Needs and Student Interests), it must consist of more than attitudes, wants and interests. And in order to get enough information to form a basis for planning such courses, the data base must be expanded beyond students.

In addition to the domain covered by the survey Widdows and Voller developed, here are some examples of other areas that could be useful to explore before planning classes to improve on the status quo.

1. Make a comprehensive survey of how university graduates presently use English, how well the present situation prepares them for that use, and how their employers expect them to use English in the future.
2. Build into classes a monitoring and evaluating process for future adjustments.
3. Assess current resources—especially teachers—and determine what they need in order to better meet the needs of their students.
4. Inform students of the entire process of determining needs and planning courses, and providing for their input on their own goals and the process itself.

In short, a needs analysis that is indeed capable of demonstrating to all concerned the direction English teaching in Japanese Universities should take, surely must involve more than a poll of what students alone want.

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Due to a huge editorial oversight, N. McBeath's excellent letter on professionalism was run in vol. 18(2) without his name. We unfortunately do not have room to run it again here, but it is well worth reading, and we highly recommend you reread it when you get a chance. At *Cross Currents* we continue to be particularly interested in the issue of professionalism in English language teaching. (See *Cross Currents*, 17(1).) Ours is a profession plagued by charlatans and quick-fix con-artists preaching the *true way*. We have found that an advanced degree does not yet guarantee a recognizable level of proficiency among teachers and administrators, nor does it provide a standard of professional behavior. This remains for the future.

Sociocultural Aspects of Second Language Acquisition

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David Nunan

In this paper, I want to take an idiosyncratic and rather personal look at the current state of classroom research, with particular reference to work on second language acquisition (SLA). I would like to suggest that the prevailing tradition in SLA, deriving as it does from a mentalist view of language acquisition, is unnecessarily restricted, and to that extent represents an impoverished view of the developmental process. In fact a great deal of SLA research is carried out as though language learning takes place in a social vacuum.

I believe that success or failure in language learning is critically dependent on social, interpersonal and cultural factors, and that unless we develop methods for incorporating these factors into our research agenda, our knowledge of what makes learners tick will remain piecemeal and incomplete. Current research based on the so called "scientific" method alone are unlikely to provide us with anything like a complete picture of the acquisition process.

Although I shall take a rather critical look at current research, I am not trying to suggest it be dismissed. Rather, it needs to be rounded out. I should add that there are SLA researchers who have allowed for a social dimension in their work. Most notable among them are Pienemann and Johnston in Australia, and Rod Ellis in the U.K. and Japan.

I shall present this paper in three parts. First, I shall present an overview of SLA research, focusing on what researchers have looked for and how they have gone about it. I'll then look at an alternative approach to the study of language acquisition, drawing illustrations from a number of ethnographic studies. Finally, I shall look at some of the educational and sociocultural implications of this alternative view.

An overview of SLA research

Second language acquisition has been described and defined in a number of different ways. Richards et al (1985) say it is "the processes by which people develop proficiency in a second or foreign language. These processes are often investigated with the expectation that information about them may be useful in language teaching" (p. 252). Hatch (1983) states that it is a subdiscipline of psycholinguistics which is "the study of human language—language comprehension, language production, and language acquisition" (p. 1). She points out that though the base disciplines are psychology and linguistics, the blend of these two disciplines, which results in second language research, is not always a smooth one. Some of the questions identified by Hatch are as follows:

> What is easy or difficult in language learning (and why)? Is there a natural order in which structures are learned? How do people learn languages outside the classroom? How is it that some learners, with only minimal second language ability, can still carry on a highly successful conversation while other learners, who score 100 percent on grammar tests, cannot carry on the simplest communication task? Can the traits of good language learners be identified? What factors influence successful language learning the most? Is second language acquisition the same basic process as first language acquisition? What kinds of models can be proposed to account for lexical retrieval or syntactic construction in language mixing or switching? What models might explain the process of simultaneous translation? (Hatch 1983, p. 2)

David Nunan is Associate Professor of Linguistics and Director of Research and Development, National Center for English Language Teaching and Research, Macquarie University, Sydney, Australia. He has written over eighty books and articles on classroom research, discourse analysis, and language acquisition.

What I would like to do is to present my own interpretation of current trends in second language acquisition research. I shall spend a little time on the following issues:

—what SLA researchers have looked for;
—what they have found;
—how they have gone about it;
—what they have neither looked for nor found.

I shall then put forward a rather different agenda from the one most commonly found in the literature—one in which the definition of research is extended, and in which research itself is closely tied to the social and cultural contexts in which it occurs.

What have SLA researchers looked for?

In recent years there has been a great deal of research into what can loosely be called second language acquisition. This research can be categorised in various ways. For example, we can look at research which focuses on teacher action as opposed to learner action; we can look at studies which focus on the processes through which acquisition takes place as opposed to those which focus on the outcomes or products of the learning process; we can look at investigations of classroom learning as opposed to naturalistic acquisition.

One commonly observed distinction is between process-oriented as opposed to product-oriented research. Product-oriented research focuses on what learners can do at various stages of instruction, whereas process-oriented research focuses upon the means whereby learners achieve their linguistic skills. Product-oriented research has looked primarily at the order in which various linguistic items are acquired, while process-oriented research has looked at the types of language prompted by different task types, the relative efficacy of different grouping patterns in the classroom and so on. In addition, some process-product research investigates such things as the effect of formal instruction on the order of acquisition.

What have they found?

Research which looks at what learners can do at various stages of the acquisition process goes back a long way. For our purposes, we can conveniently begin with a series of studies which made their appearance in the early seventies. These are the so-called morpheme order studies. Product-oriented studies include the following: Dulay & Burt, 1973, 1974; Bailey, Madden & Krashen, 1974; Larsen-Freeman, 1975; Porter, 1977; Ellis, 1982; Eisenstein et al., 1982; Johnston, 1985,1987; Hyltenstam & Pienemann, 1985; Pienemann & Johnston 1987.

There is no room to do justice to the range of findings reported by these researchers (for a detailed review and critique, see Nunan, 1991). However, for those readers unfamiliar with the literature, a brief sample of the claims made as a result of these investigations should give a flavour of the research. Researchers reported the following findings.

—Only about 15% of the errors made by learners are due to interference from the first language.
—Acquisition orders for ESL learners are strikingly similar despite the fact that learners, come from a variety of backgrounds.
—The order in which adults acquire morphosyntactic items is basically the same as those obtained from research on children.
—The order in which learners acquire a given language form will be determined by an inbuilt developmental sequence which can not be altered by instruction.
—We can distinguish between developmental features, which appear in a predetermined sequence, and variational features. Developmental features can only be taught when the learner is psycholinguistically "ready".
— The potential of pedagogical tasks to stimulate acquisition will be determined by the degree to which they encourage learners to negotiate meaning.
— The types of language and patterns of interaction which learners encounter in the classroom are different from those which are encountered outside the classroom.

Many criticisms have been made of these studies over the years. In particular, it seems clear that the findings are influenced both by the methods used to collect the data for analysis, and also the contexts in which the experiments and data collection took place. Thus, when researchers used interviews rather than

elicitation tests, they got orders which differed from the early morpheme studies. Schmidt (1977) found that the formality of the test task affected the accuracy of learner language. Ellis (1982) also found that the cognitive complexity of specific tasks influenced the success with which L2 learners performed tasks and also the complexity and accuracy of their language.

Context (including linguistic context) was also found to be important. As far back as 1970 Labov. found that with native speakers the linguistic and sociocultural context influenced linguistic output. Eisenstein et al (1982) found that studying form to the exclusion of meaning is inadequate as forms are acquired long before their full functional realizations.

In contrast with these product-oriented studies, process-oriented research has concentrated on the type of language stimulated by different types of pedagogic tasks (Nunan, 1989a; 1991). Long et al (1976) found that small group tasks prompt students to adopt more roles and use a greater range of language functions than teacher-controlled tasks. Long (1981) found that two-way information gap tasks prompt significantly more conversational adjustments than one-way information gap tasks. Porter (1983) found that learners talk more with other learners than with native speaking partners, and that learners do not make more errors when speaking with other learners. Brock (1986) found that the use of referential questions prompted significantly longer and syntactically more complex responses than display questions. Doughty and Pica (1986) discovered that small group tasks generated significantly more modified interaction than teacher-led tasks. "Modified interaction", or "negotiation of meaning", is defined as those instances when conversational partners interrupt the flow of the conversation to ensure (a) that they have correctly understood their partner, or (b) that their partner has correctly understood them.

How have they gone about it?

Data are collected from learners, either through some sort of elicitation instrument, or through some sort of formal experiment in which there are experimental and control groups, or through less structured exchanges such as interviews and conversations.

Basically, the language produced by learners (and teachers) is reduced to, and reproduced as, sets of figures or numbers which can be manipulated in various ways. Let's look at a couple of examples. The first is from Doughty and Pica's (1986) study of information gap tasks. The second is an analysis I carried out on some classroom data using an observation scheme.

Doughty and Pica carried out a controlled experiment in which they recorded the language used by learners when taking part in information gap tasks (a) in small groups without a teacher, and (b) when led by a teacher. They then estimated the amount of negotiation of meaning which occurred under the two experimental conditions by counting the number of times the learners used phrases such as "What do you mean by X." They then analysed these figures statistically to see whether one condition was more likely than the other to prompt learners to negotiate meaning. They argue that tasks and conditions which prompt more negotiation of meaning are more likely to stimulate second language acquisition.

Another way of documenting and presenting classroom language is through various forms of interactional analysis. An interaction analysis tally sheet enables the researcher to observe a lesson and record the frequency with which certain predetermined events, speech acts, and so on occur (samples of such tally sheets can be found in Nunan, 1989b; 1992).

While these sets of data can provide us with a great deal of interesting analysis, they have one great drawback, they exclude the very thing which we are most interested in, i.e. language itself Also, our ability to determine what is going on is restricted.

I should hasten to add that I do not think we should exclude studies of the sort I have already described. However, I believe that such studies are narrowly conceived and executed, that they are overrepresented in the literature, that they have unduly influenced the second language research agenda, and that they have given us an incomplete picture of second language acquisition. Many studies employing the so-called scientific method can also be criticised on their own grounds, i.e. on statistical grounds. Studies employing chi square

frequently calculate on percentages rather than on raw frequencies; there is sometimes a failure to apply or interpret proper *post hoc* measures following analysis of variance; it's not uncommon to find that researchers have not reported critical statistics needed to interpret statistical tests—we often find significance levels reported without accompanying means and standard deviations. Most serious, perhaps is that researchers often fail to adequately define the construct or phenomenon under investigation.

What the studies have not looked at or for?

So far, we have seen what the researchers have looked for and how they have gone about it. What are some of the things they have not looked at or for? What seems to be underrepresented in the research literature? I offer for your consideration the following partial and incomplete list.

—The development of literacy skills and the relationships between oracy and literacy.
—The influence of affective factors of second language acquisition.
—The relationships between learning strategy preferences and acquisition.
—The influence of classroom interpersonal dynamics on second language acquisition
—The effects of social and cultural factors on what learners take with them from the classroom.
—The classroom as a society and a culture in its own right, and the effects of the cultural mores of the classroom on acquisition.
—Following from this, the relationships which develop between learner and learner, teacher and learner, and the effects of these on acquisition.
—The effects on the acquisition process of the broader social and cultural context in which learners are living and learning.
—The relationships between input and output (cf. process-oriented studies).
—We have seen that process-oriented studies such as Doughty and Pica make assumptions about the potential of certain task types and learning conditions to stimulate acquisition, but there is still a missing link—no evidence is provided (or even sought) that increased negotiation of meaning results in superior levels of acquisition.

How might we go about investigating these critical issues? This is something I would now like to turn to.

An alternative proposition

An alternative to the narrowly conceived studies in which discrete elements of the language are isolated, manipulated and counted, is to try and capture a broader picture of language learning and use through direct observation and analysis. Of course, whenever we go into a classroom, what we see will be partly conditioned by what we are expecting to see. We all have views on the nature of language and learning, and these will have an important influence, not only on what we see, but on what we think we see. These two things are not necessarily the same. Whatever procedures are adopted, it is important to bear in mind that no data collection procedures are value free, not even so-called direct, "objective" observation. However, I believe that direct observation is an important element in all classroom-oriented research. If we record, analyse and reflect on the patterns of interaction in our own classrooms and (where possible) the classrooms of others, we will come to appreciate the richness and complexity of the acquisition process.

I have already indicated some of the research issues which might be investigated. We also need to develop a rich array of research methods which are derived from direct observation of introspection. Once again I offer you a list which does not pretend to be exhaustive.

—Observation checklists of various sorts.
—Teacher and learner commentary.
—Seating and interaction charts for documenting the social organisation of the classroom.
—Classroom ethnography.
—Teacher and learner diaries, logs and journals.
—Transcript analysis.
—Talking to learners about the learning process.
—Finally, as serious students of language learning and teaching, we might even consider learning another language ourselves, and keeping a record of the experience.

Despite their diversity, all of the methods take as their point of departure direct observa-

tion and/or introspection on teaching and learning processes.

In the rest of this section, I should like to look at some data taken directly from learners and the learning context. In each instance, we shall look at the data and ask: What can we learn from, or legitimately infer from the data? Extract 1 is a narrative version of a piece of classroom interaction.

This narrative account of a piece of classroom interaction gives a rich picture of the classroom where the interaction occurred. Of course, there are disadvantages to this type of documentation. It is extremely time consuming to do, and there is the danger that the author's voice will misrepresent or distort the interactions themselves. Nevertheless, it does provide us with the richness of the language in

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Extract 1: Narrative

The teacher enters the classroom in conversation with one of the students. "Of course I had lunch", he says. "Not enough. Why? Why?"

The student gives an inaudible response, and joins the rest of the class who are sitting in a semicircle. There are eighteen students in all. They are a mixed group in both age and ethnicity.

The teacher deposits three portable cassette players on his table, and slumps in his chair. "Well, like I say, I want to give you something to read — so what you do is, you have to imagine what comes in between, that's all...." He breaks off rather abruptly and beckons with his hand, "Bring, er, bring your chairs a little closer, you're too far away."

There is some shuffling as most of the students bring their chairs closer. The teacher halts them by putting his hand up, policemanwise, "Er, ha, not that close." There is some muffled laughter. The teacher is about to speak again, when a young male student breaks in with a single utterance "Quiss?" The teacher gives him a quizzical look "Pardon?"

The student mutters inaudibly to himself and then says, "It will be quiss? It will be quiss? Quiss?." Several other students echo, "Quiss. Quiss."

The teacher grins and shakes his head, "Ahm, sorry. Try again." The student frowns in concentration and says, "I ask you..." "Yes?" interjects the teacher. "...You give us another quiss?"

Slowly the light dawns on the teacher's face. "Oh, quizz, oh! No, no, not today. It's not going to be a quiss today. Sorry... But, um, what's today, Tuesday is it?"

"Yes", says the student.

The teacher frowns and flicks through a notebook on his desk. "I think on Thursday, if you like. Same one as before."

"Only I'll think up some new questions — the other ones were too easy." The students laugh, then the teacher, holding up the daily newspaper, continues, "Um, OK, er I'll take some questions from, er, from newspapers over the last few weeks, right? So — means you've got to watch the news and read the newspaper and remember what's going on. If you do, you'll win. If not, well, that's life."

One of the woman students, a Pole in her early thirties says, "Will be better from TV." There is laughter from several of the students.

"From the TV?" echoes the teacher. "What, er, what programs..."

"News, news," interject several of the students.

There is an inaudible comment from one of the students. The teacher turns sharply and begins, "Did you say...?" He breaks off abruptly. "Oh, OK. We'll have, er, it'll be the s...., it'll be the same." He pauses and then adopts an instructional tone, as he attempts to elicit a response from the students. "There'll be different ... ? Er, there'll be different ... ? Different? Different? The questions will be on different .... what? Different?"

"Talks," ventures one of the students near the front.

"Tasks? What?" says the teacher giving a slight frown.

"Subject?" suggests another student rather tentatively. The teacher gives her an encouraging look and says, "Different sub ..." He extends his hand and narrows his fingers as if to say "You've nearly got it."

"Subjects," says the student, beaming.

The teacher beams back, "Subjects, subjects, thank you. Right, yes."

its particular social context, and also provides us with insights into social and interpersonal aspects of classroom life.

Extracts 2 and 3 are more conventional transcriptions of classroom interactions without any authorial intrusions or interpretations. Here we can observe the contrast between interactions in which the teacher dominates and those where the students are on their own.

The usual practice in analysing such interactions is to count such things as clarification requests and comprehension checks, as in the study by Doughty and Pica (1986) which we looked at earlier. Or we might attempt to measure the complexity of the language through calculating the mean length of utterance, the number of S-nodes per T-unit and so on. Such counts might enable us to state whether different types of classroom tasks stimulate more or less complex language and/or more or less modified interaction (which is hypothesised to facilitate acquisition). In the process, however, much of the richness of the interaction is lost. The same can be said for various observation schedules, an example of which we have also seen.

Qualitative analysis of the actual language used gives us insights into the particular nature of classroom discourse. Extract 3 reveals the amount of language which can be stimulated when learners are encouraged to bring something of themselves to the interaction. We also see something of the social relationships which have developed between the learners and the effect of these relationships on the quality and quantity of language which learners are stimu-

Extract 2: Transcript

T The questions will be on different subjects, so, er, well, one will be about, er, well, some of the questions will be about politics, and some of them will be about, er, what?
S History.
T History. Yes, politics and history and, um, and...?
S Grammar.
T Grammar's good, yes, but the grammar questions were too easy.
S No
S Yes, ha, like before.
S You can use...[inaudible]
T Why? The hardest grammar question I could think up — the hardest one, I wasn't even sure about the answer, and you got it.
S Yes.
T Really! I'm going to have to go to a professor and ask him to make questions for this class. Grammar questions that Azzam can't answer. [laughter] Anyway, that's, um, Thursday...yeah, Thursday. Ah, but today, er, we're going to do something different....
S ... yes....
T ...today, er, we're going to do something where we, er, listen to a conversation — er, in fact, we're not going to listen to one conversation. How many conversation're we going to listen to"
S Three?

(Nunan 1989b)

Extract 3: Transcript

S1 My next door neighbour....he make eh very noisy, very noisy [yeah]. I can't tell him because he's very good people.
S2 You can't say.
S1 He's very good neighbour.
S2 You can't say, because if you say, maybe will feel different.
S3 Yes, you don't like it....
S1 I don't like.
S3 Independence.... Those people probably very protective.
S2 Yes, I think so.
S1 In my time, when I go to sleep....
S2 ...go to bed [yes].
S1 These people is very good.

S2 ...you don't want to say anything because you might get upset, of course. Me do the same thing because I've got neighbours in my place and always you know do something I don't like it but I don't like to say bad because I thing maybe you know make him upset or....
S4 I've got bad neighbour but I feel embarrass....
S2 ...to say something of course, like everyone....
S4 They always come in and see what I'm doing — who's coming. [no good] [yeah, that's no good] They want to check everything. If they see I buy something from the market they expect me to give them some. [oh yeah]. [oh that's not nice] But I...it's difficult.
S2 It's a difficult, yeah, but sometime it's difficult....
S4 They can't understand, I bought them and I gave money....(laughter) [yeah]
S You know sometime difficult to the people because sometime I can't speak the proper, the language, and little bit hard to give to understand...and that's sometime feel embarrass then, I can't say it, you know?
S1 Sarah, you tell [you tell now].
S5 My, er, for example, my sister in law she all the time snores in her sleep [oh, yes] And my brother say, "Oh, I'm sorry, we must sleep separate" [separate beds] (laughter). They did. [good idea] A good idea because he couldn't sleep. (Nunan, 1991)

lated to produce.

I suggested earlier that learning another language can provide us with valuable data on affective and social aspects of language acquisition. This is illustrated in the next extract, in which we turn from transcript analysis to the analysis of data provided by learners themselves. In this instance it is extracts from the diary of a second language learner. The learner is a native speaker of English, his second language is Arabic, and he is attempting to learn Portuguese both formally and informally in Brazil. He is also a teacher and researcher of second and foreign languages.

The diary is presented in three phases, representing the three phases in which the learner learned Portuguese—first naturalistically, with no formal instruction, secondly, a phase of formal instruction, and finally, naturalistically again.

Extract 4: Diary studies

Stage 1 (no interaction/ no instruction)

P [R's teenage son] and I have been alone almost all the time we've been here ... We've been spending a lot of time at the beach, which requires no language, and exploring the neighbourhood, which requires a little more. When we want to go somewhere, I ask at the hotel desk first, repeat whatever I was told to the cab driver, and read the meter to see how much it cost. Buying necessities and eating require a bit more. The night before we left Honolulu, X and Y gave me a dictionary and a phrase book [Figueiredo and Norman 1979], both pocket-sized, and I carry them everywhere. So when I went to a pharmacy the second day I could ask for a pasta de dente instead of just pointing at the toothpaste. When a clerk says how much something costs, I try to understand the price (so far I cannot) before handing over a bill I've already calculated to be more than enough .... My solution in restaurants: order something I don't know, and I'll know what it is the next time. I've been frustrated at breakfast, though, because the waitress always brings my coffee with milk, which I detest. She always asks first cafe com leite? and I've tried saying leite nao, meaning that I want it black, but it still comes with milk or not at all.

During the remainder of stage 1, virtually all of R's journal entries report noncomprehension of Portuguese and a strong sense of frustration at not being able to break into the language system.

Stage 2 (interaction plus instruction)

P and I started class yesterday.... The teacher is young and very good. She introduced herself to us (in Portuguese): I am X, my name is X, I am your teacher, I am a teacher, I am a teacher of Portuguese....She went around the class asking the same kinds of questions ... For the rest of the class we circulated, introducing ourselves to each other and talking until we exhausted the possibilities. At the end of the class, X put the paradigm for SER on the board, plus a few vocabulary items. Great! This is better than *bom dia* and then silence.

Unfortunately for R, he was then moved to a new class and a different teacher.

> When I sat down a drill was in progress. SER again, which must be every teacher's lesson one. Teacher asks, student responds: *Você e Americana?* ["Are you an American?"]. *Sou sim* ["I am, yes"]. When it was my turn the question was *Você e casado?* ["Are you married?"], so I said *naõ*. **L** corrected me: *Sou, sim.* I objected: *Eu naõ sou casado.* **L** said [in English], "We are practicing affirmative answers." I objected again, I'm not married., and **L** said, "These questions have nothing to do with real life." My blood was boiling, but I shut up.
>
> [two weeks later] **L** and I are still giving each other a hard time. Today in class, **K**'s sentences in a substitution drill had a negative before the verb, followed by *nada.* I wanted to find out whether other double negatives are possible, so when it was my turn I said *Eu naõ conhecia ninguém* ["I don't know anyone"]. This wasn't the sentence I was supposed to produce. I don't know whether **L** corrected me to *alguem* or not. I only remember her annoyance that I was not performing the drill as I was supposed to, so I didn't find out what I was after.
>
> *Stage 3 (interaction only)*
>
> **H** and I ate dinner at Caneco 70. He complained non-stop about his job. I tried to say "you don't seem comfortable" with the job *Sinto que você naõ esta comfortavel,* and his face showed complete non-comprehension. I grabbed my dictionary. "Comfortable" is *comfortavel.* but it flashed through my mind that perhaps you can only say chairs are comfortable, not people. A few minutes later, **H** said something with *naõ deve.* I was taught DEVER as "have to" or "must" and I've been thinking that *naõ deve* + Verb would mean "must not", but **H**'s remark obviously meant "should not". So I learned something, but in general **H** is a terrible conversationalist for me. He doesn't understand things that I say that everyone else understands. When I don't understand him, all he can ever do is repeat.
>
> Last night I met **X**, who's just come back from Argentina. Before we were introduced, I overheard **M** and **U** talking to **X** about me at the other end of the table. **X**: *Ele fala portugues?* ["Does he speak Portuguese?"] **U**: *Fala mal* ["He speaks poorly"]. **M** said I make lots of mistakes, and mentioned *marida* and *pais.* **X** saw me looking at them and said: *Mas você entende tudo?* ["But you understand everything?"] I wanted to let them know I had been listening, so I replied: *Entendo mal também* ["I also understand poorly"]. (Schmidt and Frota 1985)

These short extracts demonstrate the fascinating insights into the struggle to learn a second language inside and outside of the classroom. **R**'s diary is a rich source of data on language learning, and provides insights which would be difficult to obtain in any other way. We see that learners do not come into the classroom as blank slates to be inscribed upon by the teacher, but bring with them a wealth of sociocultural and linguistic knowledge which they employ to try and make sense of the new social, cultural and linguistic worlds they are entering. In some instances this prior knowledge helps them, and in other instances it is misleading. We also see that learners have a preferred range of learning strategies which can either help or hinder their efforts to learn their new language. Finally, we obtain insights into the importance of affective factors in second language acquisition, and see the devastating effects of criticism on **R** as he tries to learn a new language.

These ethnographic records are not just entertaining tales. The rich data yielded by such accounts can be important primary sources for theory construction. On the basis of the diary study, Schmidt and Frota feel confident enough to invade the psycholinguists domain and stake out a claim by engaging in a bit of theory building of their own. They reject Krashen's hypothesis that acquisition occurs subconsciously. They believe that for acquisition to take place learners must consciously notice the gap between their own production and that of native speakers. They put it this way:

> ....it seems to us that the process of comparative operations and the prineiple that learners must "notice the gap" are extremely important and potentially useful additions to the theory of second language acquisition that Krashen has been developing for more than 10 years. However, we propose to make a significant modifi-

cation of the principle, with which Krashen would surely not agree. While Krashen proposes that both the product and process of acquisition are subconscious, and specifically that differences between competing forms i and i + 1 are noticed at a subconscious level (Krashen, 1983, p. 140), we propose instead that in the particular case of a nontargetlike form i and a targetlike form i + 1 a second language learner will begin to acquire the targetlike form if and only if it is present in comprehended input and "noticed" in the normal sense of the word, that is, consciously. (Schmidt and Frota, 1985, p. 311)

The final method I should like to look at is called protocol analysis. Here, the method is to audio or videotape a segment of a class and then to get the teacher to review the lesson and give a running commentary on what was going on. This is recorded, transcribed and set beside a transcription of the lesson.

Extract 5: Protocol Analysis

Transcript

T: *Once you've got a set of pictures... Bo, are you listening? I'm waiting for people to listen. Still waiting.*

Ss: *Listen. Listen*

T: *When you've got a set of pictures, go anywhere in the room. Anywhere. Don't have to sit in a circle. Go anywhere. Find, find your own pesonal space. Now, how many pictures should you have? How many?*

S: *Nine. Nine.*

T: *All right. Nine.*

S: *Nine*

Commentary

At this stage in the lesson I was trying to set up an extended listening activity. The students really lack confidence, and need the opportunity to hear lots of input. I've read people like Krashen and Asher, and was trying to put some of their ideas into practice—I mean these students are really slow track. They came to me after an on-arrival course—I suppose they'd had well over a hundred hours of instruction, and couldn't even answer questions like "What's your name?" That was a real shock to me. Their previous teacher said that they were incapable of learning, but I just don't accept that.

I can hear from the audio tape that I was a bit irritated at this point at just how long they were taking to each get a set of pictures. Just getting them to pay attention to simple classroom instructions is really hard work. I also realised from the tape that I make these little asides—I mean, "personal space" really! Not that they'd be ahle to pick it up, hut it could come across to someone else, you know, another teacher, as patronising. It's quite incredible what you find out about your own teaching hy listening to a tape—frightening really.

T: *And they should all be different. Now this time, this time.... All right, this time it's going to be, this time is going to be difficult because I'm not going to speak. The...instructions will come from the cassette. So you must listen very carefully, all right? You must listen for the picture to find and hold it up, then you have to listen where to put it...On top of...on top of...*

Ss: *On top of.*

T: *Underneath. On the right, on the left. Between.*

I had to pause here as some of the students discovered that they didn't have enough pictures after all. It was really important for them to concentrate hecause I was trying to do something new. Before, they'd heen listening to me describe a picture, and they'd have to find which one I was describing and hold it up. Now they were having to listen to a tape. It's much more difficult. We'd done a lot of work on adverbials of place and prepositions, too, and I built those into the activity.

T: *Is everybody ready?...How could you possibly not...? What were you doing? Talking? (laughter)*

S: *No, I give to....*

T. *Oh, you gave them away. ... turning off the...nine...there you are, you can go over there if you like.*

I had to stop again because one of the students still didn't have the right cards. I was starting to get a bit cheesed off. Shows how important it is to give them time and find out what's going on. It turned out she'd given her cards to her friend who's much weaker than she is. I counted out a set of picture cards for her and put her on the other side of the room so her friend would have to work hy her self. One of the things I've found with this comprehension approach is that the students tend to switch off, and not process the language at all if you're not directly addressing them. And the weaker ones don't seem to process the language at all—they just watch what the better ones are doing and copy them.

As with diary studies, protocol analysis provides us with insights into teaching and learning processes which would otherwise be difficult, if not impossible to obtain. An interesting extension is to get learners to view part of a videotaped lesson in which they were involved and to do a commentary on it. Putting the learner commentary side-by-side with the teacher commentary can be very illuminating. As Dick Allwright (1988) has demonstrated, the views of teachers and learners do not always coincide.

Discussion

What sort of generalizations can we derive from the data we have just examined? I should like to comment on a few. First, the classroom is a sociocultural entity in its own right. Second, we need to develop appropriate methods and metaphors for investigating and reporting language acquisition inside and outside the classroom. And third, we need to respect and protect the learner's own ways of knowing.

The classroom is a sociocultural entity in its own right.

The sorts of interactions which occur in the classroom are not the same as the sorts of interactions which occur outside the classroom. That is to say, the language that teachers and learners use inside the classroom is different from the language they use outside the classroom. Take for example, display questions, substitution drills and controlled practice. Ellis attributes the persistence of such things to

> ...the type of social organisation which predominates in the classroom and which governs the role relationships to be observed there. Traditionally the classroom is the place where the teacher has control over what counts as knowledge and over what is said and done. Controlled practice and its battery of drills and exercises ensures that the teacher has more-or-less total control. (Ellis, 1988)

van Lier (1988) also observes that things are different in the classroom from the way they are outside, suggesting that the classroom has its own culture and its own validity. He suggests that these will only be revealed if we study language in the context within which it was created:

> ...language learning occurs in the context of social interaction, both in the classroom and outside it.... The classroom researcher must therefore study the classroom as embodying a specific set of functions and values from the point of view of the learner, and also from the point of view of social institutions at large. Ideals, expectations and conceptions of the properties that a classroom must possess so that it can be regarded as an ordinary, good classroom, play an important role in determining what will happen in that classroom. All these influences decide that the things that are done in classrooms, and the way they are done, are not the same sorts of things as those that happen in other places. (van Lier, 1988, p. 81)

Despite these contemporary exhortations for the direct study of the classroom, it is sobering to note that over a decade ago the eminent sociolinguist, Joshua Fishman, said that "...the ethnography, the sociology, the social psychology and the educational psychology of the bilingual classroom are all little more than gleams in the eyes of a few researchers" (Fishman, 1977, p. 34). Despite some inroads, Fishman's observation remains pertinent today.

We need to develop appropriate metaphors for studying acquisition processes.

In one of the major ethnographic studies of language life and work in communities and classrooms, Heath makes the following criticism of psychometric methods of educational investigation:

> Often the approaches to research in education have been quantitative, global, sociodemographic, and dependent on large-scale comparisons of many different schools. Terms from business predominate: input, output, accountability, management strategies etc. Input factors (independent variables) are said to influence, predict, or determine output factors (dependent variables). Pieces of data about social groups, such as number of siblings or

time of mother-child interactions in preschool daily experiences, are correlated with the output of students expressed in terms of test scores, subsequent income, and continued schooling. The effects of formal instruction have been evaluated by correlating these input factors with educational output.

From an ethnographic perspective, the irony of such research is that it ignores the social and cultural context which created the input factors for individuals and groups. Detailed descriptions of what actually happens to children as they learn to use language and form their values about its structures and functions tell us what children do to become and remain acceptable members of their own communities.

In her own research, Heath says she:

> ...never took into either community objects which were not already familiar to the residents' daily life, and as far as possible I tried not to use any of the items in the communities in ways unfamiliar to them. I spent many hours cooking, chopping wood, gardening, sewing, and minding children by the rules of the communities. For example, in the early years of interaction in the communities, audio and video recordings were unfamiliar to community residents; therefore I did no taping of any kind then. (Heath, 1983, p. 8)

In the second part of the paper, I tried to give some indications of alternative ways of collecting context-rich data about the nature of language, learning and teaching. I hope that the illustrations, brief as they are, give some indication of the potential of such alternatives, particularly for those of us who, like Heath, are more interested in obtaining *insights* rather than *proof*. Teachers who are interested in an additional, excellent illustration of the potential of ethnographic studies for providing insights into the teaching learning process, should see Richards' excellent case study of a reading teacher (Richards, 1990).

One of the implications of the sorts of alternatives I have outlined is that research needs to be demystified—to be knocked off its perch. It also need to be more collaborative, with joint ventures being undertaken between researchers, teachers and learners.

In this paper, I have tried to demonstrate the importance and value of prexisting knowledge and beliefs for new learning. In the process of being initiated into a new culture and a new language, it is crucially important that the learner's preexisting culture and language are neither undervalued nor obliterated.

Conclusion

What I have tried to do in this paper is to stake out a claim for a rather more broadly based study of second language acquisition than is currently represented in the literature. In doing so, I have not intended to denigrate the research which has been conducted within a psycholinguistic paradigm. However, I have tried to suggest that such work needs to be complemented by research which places language in its social context. As Ellis points out "...there is no need to oppose qualitative and quantitative research. Each is capable of "critical thinking" and each has its own place in interlanguage studies. The danger is in imagining that enquiry that does not involve quantification is not scientific or in failing to acknowledge the contribution that can be made by...research that employs both qualitative and quantitative procedures" (Ellis, 1984, p. 284).

More particularly, I have argued that it is only by spending time in classrooms and attempting to understand language within the rich and diverse sociolinguistic contexts in which it occurs that we will deepen and enrich our understanding of second language acquisition processes. These processes are not just linguistic, they are also social; they are not just psychological, they are also cultural; they do not just happen through an osmotic process of input, but are also crucially dependent on appropriate interaction. Only by studying language in its social and cultural contexts, will we come to appreciate the apparent paradox of language acquisition: that it is at once a deeply personal and yet highly social process.

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The Need for Multi-Media ESL Teaching Methods: A Psychological Investigation into Learning Styles

Don W. Hinkelman *Jay M. Pysock*

One of the most difficult tasks for an ESL teacher is the selection of productive teaching methods. Recent research in educational psychology has shown that classroom achievement is greatly influenced by individual learning style, and that variations in individual students' innate learning styles can greatly explain why some excel in a lesson while others do not. When an instructor knows the individual's and class' preferred learning style, appropriate teaching methods can be applied to facilitate learning.

A survey of research in the field of learning styles by Dunn et al (1989) has shown that there are numerous models which account for the individual preferences that influence classroom learning. Some of these models consider the classroom environment, for example lighting or seating arrangements. Other models explain sociological factors such as peer pressure and grouping preferences. Any of these models can be applied to gain useful insights into language teaching. However, one which is specifically concerned with the perceptual or sensory aspects of learners can help us understand whether audio or visual teaching methods are more productive for language learning.

One highly-debated subject among scholars is the comparison of audio vs. visual language teaching methodologies. For example, Takeuchi et al (1990) have concluded that the audio-based methodologies are more productive than visually-based ones. The purpose of this paper is to use current findings in learning styles to help resolve this debate about various teaching methodologies. The learning style model which best analyzes these perceptual factors is called the Modality Model. It compares preferences for class lessons presented via auditory (learning by hearing), visual (learning by seeing), or kinesthetic (learning by doing) means.

In this paper, the Modality Model will be investigated and applied to an ESL lesson. By doing this, we hope to show 1) how teaching methods can be categorized according to learning style preferences, 2) what kind of survey can easily and quickly determine individual learning styles, 3) how methods can be mixed in the classroom without expensive technology, and 4) what kind of results can be expected when using a multi-media lesson plan.

A test sample of 200 university students with a relatively homogeneous background and level of English will be surveyed to determine if there are significant differences in media preference within each class. Identical content (twenty vocabulary words) will be taught using four different teaching methods—a visually-oriented method (V), an auditorily-oriented method (A), a kinesthetically-oriented method (K), and a method which combines all three modalities. The effectiveness of these lessons will then be determined by a post-test one week later. By comparing the results of each type of lesson, we hope to determine whether student achievement improves significantly when individual learning styles are considered in lesson planning.

RESEARCH ON LEARNING STYLES

In order to have a thorough understanding of learning styles and the roles they play in language education, a brief review of recent research may be helpful.

The term "learning style" has a specific technical meaning which may be easily con-

Don W. Hinkelman is an instructor at Hokkaido University of Education, Iwamizawa Campus

Jay M. Pysock is an instructor at the Muroran Institute of Technology in Hokkaido.

fused with a variety of similar terms. What we mean here by a learning style is the innate preference a person has for the way he or she receives information in a learning situation. Dunn et al (1989) define it as "...a biologically and developmentally imposed set of personal characteristics that make the same teaching method effective for some and ineffective for others..." (p. 16). As it concerns the way information is processed psychologically in the brain, the term "cognitive style" is identical to "learning style."

Learning styles should not, however, be confused with "learning strategies" which concern the special behavior used by a student to optimize the acquisition of a skill (O'Malley & Chamot, 1990). These strategies include study skills such as outlining, flash cards, or drawing analogies (Weinstein et al., 1989). An awareness of learning styles must precede a learning strategy since these specific skills must take advantage of one's innate learning style to be effective. A good learning strategy flows out of an individual's natural preferences. Yet researchers in learning strategies often make the mistake of searching for an ideal strategy for all language learners. Learning style theory, in a sense, contradicts the assumption that an optimum strategy can be identified and recommended to a whole class. Instead, it asserts that individual learners need different learning strategies in the classroom.

Unfortunately, much language education literature focuses on the similarities of learners. Skehan, on the other hand, emphasizes the importance of individual differences in second-language acquisition. From the "Good Language Learner" model, (Naiman et al., 1978) he discerns seven individual variables which affect the rate of language acquisition: age, intelligence, aptitude, motivation, attitude, cognitive style, and personality. (Skehan, 1989)

Still, cognitive style has rarely been a concern for high school and university teachers of English in comparison to the intelligence, aptitude, and attitude variables. Recently, however, a number of researchers are beginning to find that cognitive styles are equally important. (Finocchiaro & Brumfit, 1983; O'Malley & Chamot, 1990; Richards, 1990; Naiman et al., 1978; Strevens, 1977; Valdes, 1986).

Moving from ESL research to the general field of educational psychology, discussion on learning styles has grown in the last ten years. Psychologists originally believed that all people are fundamentally the same and go through various stages to a common level of maturity. This is echoed by traditional ESL curriculum which is characterized by levels or stages through which students progress. More recently, another movement in psychology contends that people are fundamentally different, develop into unique personality types, and have unique learning patterns (Jung, 1976; Kiersey & Bates, 1984; Myers, 1981). It is from this latter school that the theory of learning styles has emerged (Guild & Garger, 1985; Kirby, 1979; Lawrence, 1982).

Learning style research originally concerned itself with individual variances in sensory perceptions (Barbe & Swassing, 1979). This was later expanded to cognitive thought processes (Kolb, 1983) and personality factors such as introversion and decisiveness (Keirsey & Bates, 1984). Recently, comprehensive models have been developed which integrate the physical learning environment (lighting, color, furniture) and sociological preferences (class size, cooperativeness, peer/teacher relations) with perceptual preferences. Furthermore, researchers have also determined that within all learning styles there are similar ranges of intelligence, thus finding no correlation between aptitude and learning style (Dunn et al., 1989).

Because instructional technology and media play a prominent and easily identifiable role in language education, this paper will adopt the learning style model which focuses on these factors—the Modality Model. The term "modality" generally refers to the sensory channels through which we receive and give messages. Barbe and Swassing (1979) defined modality as "...any of the sensory channels through which an individual receives and retains information. Sensation, perception and memory constitute what we are calling modality" (p. 1). A number of researchers have identified modality areas as examples of differences in learning style (Gardner, 1983; McKim, 1972; Piaget

& Inhelder, 1955). Much of Maria Montessori's work was built on an understanding that children needed visual, auditory, and tactile involvement in learning (Reilly & Lewis, 1983). It was Barbe and Swassing (1979) who organized and tested different modality preferences and strengths in a clear model as a way to better understand the learning styles of adults and children. They identified visual, auditory, and kinesthetic (tactile) modalities as the most important sensory channels for education. To more deeply understand how modalities affect learning, a description of the three learning styles within the modality model follows.

THREE LEARNING STYLES

As an initial step in applying learning style theory to language education in Japan, this paper describes one model of learning styles which focuses on the perceptual preferences of individuals. This model, developed by Barbe and Swassing (1979), is called the Modality Model or sometimes the VAK Model. The following section describes three learning styles within this model and discusses their application to second language classroom situations.

The first learning style is visual (V). These learners want to see words written down, and a picture is necessary when something is being described. In grammar class, a sentence diagram is key to understanding the parts of speech. In fact, a visual learner will often miss the details of an assignment if it is not written on the board. Such learners tend to be attuned to the physical environment in the classroom including the decor, arrangement, and lighting. As young children, they love the pictures in storybooks. Similarly, as adults, visual learners look for illustrations, diagrams, and charts to help them understand and remember information. Handouts and overhead transparencies are especially appreciated during training sessions. Their study habits include highlighting text passages, rereading notes taken in class, or even reorganizing materials in outline form. In the language classroom, these learners may be strong in reading and writing. Handwriting will tend to be clear or even beautifully expressive. Illustrated textbooks with good layout will catch their attention and aid retention for these learners. A language lesson emphasizing the visual modality might consist of watching a video and extensive use of blackboard writing or pictures.

The auditory types (A) learn by hearing. They use their ears to understand new concepts and acquire new skills. They find it easy to remember what they have heard or spoken. If a word or concept is hard to understand, they ask a question or discuss it. When they are excited and enthusiastic about learning, they want to verbally express their response. They often remember assignments given orally without writing them down. These learners enjoy class discussions; their growth and development comes through listening and talking with others. When a teacher takes time to explain a point to them, they can usually understand quickly. With their sensitivity to sound, noises may distract them. However, quiet moments may be disturbing enough to them that they may break the silence with music or by talking. When these students read, they prefer to vocalize the words in order to hear themselves. When memorizing, they may say the passage aloud several times to implant the sounds in their minds. Yet within a traditional second language course, grammar, writing, and translation are often emphasized which require little aural/oral ability. Thus in many language classes, auditory learners may fail in these skills but excel in pronunciation and listening exercises. A lesson emphasizing the auditory modality would generally consist of listening to audio tapes or writing dictations.

The third kind of learners, the kinesthetic types (K), learn more quickly and comfortably when physically involved with the study material. These learners would rather act out a situation than talk about it. They prefer keeping their hands busy making a product, doing a project, or actively applying the lesson. As children, they enjoy playing with Erector sets or Lego blocks. In high school, they may select industrial arts or home economics courses over academic subjects. They naturally discover that they have to do something physical in order to understand and remember. Although they may take profuse notes, they will rarely reread their writing. It is just a way to keep their

hands busy. When learning to use a computer, the manual may be discarded in favor of hands-on experimentation. Sometimes a failure in a science lecture class, the kinesthetic learner may shine in the laboratory. Poetry is more interesting if physically expressed with motions. Dialogues performed with props and body language are ideal ways to engage the kinesthetic learner learning a foreign language. A lesson emphasizing the kinesthetic modality would usually consist of doing an active role play.

These descriptions are summarized in the following table which lists preferred language teaching methods by learning style.

METHOD

To test the premise that mixed method/multimedia lessons are better than ones focusing exclusively on one method alone, four classes were chosen to receive different teaching methods. From a university in Hokkaido, Japan, four classes of almost all-male, second-year university students were selected. Each class consisted of fifty or more students. All students had completed the required six years of pre-university and one year of university level English. One class was given a visual lesson; another an auditory lesson; and a third a kinesthetic lesson. The fourth class had a lesson which combined methods from all three modalities—visual, auditory and kinesthetic.

Students were first surveyed as to their learning styles. A learning-style questionnaire was used which tested visual (V), auditory (A) and kinesthetic (K) preferences. This survey was developed by an educational consulting organization (ICA, 1988) to determine student learning modalities and was extensively tested in international educational institutions. The questions in the survey were based on the three modalities as described by Barbe and Swassing (1979). Although the purpose of this research is for language education, the questions are designed to identify each individual's general learning style. They attempt to discern the subject's learning patterns in both informal learning situations (i.e., learning directions to a friend's house) and formal classroom settings (i.e., learning through videos, tapes, or role plays). To ensure no misinterpretations due to language, the survey and instructions were translated into Japanese. The English version of the questionnaire is shown in Appendix B.

Students were asked to rank the three answers in order of preference. The answer most preferred was marked "3," the next preferred "2," and the least preferred "1." The students then totalled the columns to determine their strongest modality preference. The combined total of all answers for each student was always 72. This allowed easy location of errors in addition. The highest total was designated the "learning style." Any sheets where all three columns were equal (24-24-24) or varied by a difference of only two points (25-24-23) were listed as "equal" preferences. When a class

Table 1: METHODOLOGIES CORRESPONDING TO THE THREE MODALITIES

EXAMPLES OF PREFERRED METHODS/MEDIA FOR EACH LEARNING STYLE

VISUAL *learning by seeing*	**AUDITORY** *learning by hearing*	**KINESTHETIC** *learning by doing*
video	audio cassette tape	student role play
reading/watching	hearing, vocalizing	acting
written instructions	verbal instructions	imitated instructions
pictures	songs	drama
blackboard	lectures	skits
silent way	dictation	TPR
flashcards	repetition drills	body language practice

consisted of more than fifty students, only fifty scores were selected at random for a total of 200 students for this sample. The meaning of the three categories was explained to students after the survey as a way of building self-awareness of their own learning styles.

The purpose for giving the Learning Style Survey was, first of all, to determine if individuals differ in their media preferences and secondly, whether each class as a whole might have a predominant learning style. We also wanted to test the hypothesis that a mixed modality (multi-media) lesson plan utilizing visual, auditory and kinesthetic methods would lead to more productive learning. In this case four lesson plans emphasizing different methods were designed and compared by testing students' knowledge before and after the lessons.

The objective of each lesson plan was identical—to teach twenty advanced-level vocabulary words in meaningful sentences. These twenty words were selected on the common theme "Going to the Doctor". (See Appendix A.) Words were chosen which students would not have previously known or studied. This was confirmed by giving a pre-test to all students. Each student was asked to write a sentence demonstrating the meaning of the word in its correct context (e.g., "A typewriter is used for writing reports."). The students were told that sentences which did not show the definition (e.g., "I like typewriters.") would be marked wrong. Students were also told to leave the answer space blank if they did not know the meaning. Tests were evaluated and scored together by two native speakers to assure consistency and correct scoring. Grammar and spelling mistakes were ignored.

Having determined that the twenty words were relatively unknown to the students, four different lesson plans were designed to teach those words intensively during a ninety minute class period. The first three classes were given lessons which employed one teaching modality as exclusively as possible. Class 1 was taught using the visual modality; Class 2 the auditory modality; Class 3 the kinesthetic modality. For Class 4 all three modalities were combined. Role play, dictation, worksheets, and other techniques were mixed throughout the lesson.

For the lessons, the authors wrote a dialogue including the twenty target words (see Appendix A.) and performed it on video. This was shown repeatedly to Classes 1 and 4. For Class 2, the dialogue alone was played on audio cassette (no video portion). Class 3 spent most of its period performing role plays on the theme, having viewed the video only briefly. These lesson plans are described in detail in Table 2 on the following page.

A post-test identical to the pre-test was given one week later with no advance notice to all four classes. Therefore, test results should have reflected retention of the previous week's lesson. Test time was ninety minutes. One native instructor was responsible for teaching all the lessons while another, unaware of the type of lesson taught to each group, graded all the post-tests.

DATA & RESULTS

Figure 1 shows the results of the Learning Style Survey as percentages of each learning style in each class. The percentage of each style can be found on the top of each bar graph. V, A, K, and E scores can be analyzed by comparing the bar graphs. In all classes significant numbers of learners demonstrated preferences for each of the modalities. Unless students were separated into different classes by modality (a highly unlikely prospect), a lesson plan mixing methods from all three modalities would appear to be best for all classes. Compensation could be made for a class strongly-oriented toward one modality.

Figure 2 shows the learning style percentages of the total 200 students tested. From the total sample, 29% were V, 30% A, 36% K, and 5% E or equal. It can be clearly seen that students' learning styles vary greatly and that 36% kinesthetic was found to be the most frequent style in this group tested.

Results of the pre- and post-tests can be seen as a bar graph in Figure 3. The tests were given three weeks apart. Pre-test scores were similar, ranging from 8.7 to 10.4 on a scale of 100. The post-test scores, however, showed greater variance—Class 1 (V): 51.9, Class 2 (A): 55.9,

LESSON PLANS USED IN FOUR TEST CLASSES

Class 1: Single Modality Lesson	Class 2: Single Modality Lesson	Class 3: Single Modality Lesson	Class 4: Mixed Modality Lesson
VISUAL EMPHASIS	AUDITORY EMPHASIS	KINESTHETIC EMPHASIS	VISUAL/AUDITORY/ KINESTHETIC COMBINED
1. Write list of 20 words on blackboard (V)	1. Dictate list of 20 vocabulary words (AK)	1. Distribute list of 20 vocabulary words (V)	1. Distribute word list—look up meaning (V)
2. Look up Japanese meaning in dictionary (VK)	2. Play Japanese translation from audio tape (VK)	2. Look up Japanese meaning in dictionary (VK)	2. Repetition and oral translation drills (A)
3. Show video with 20 key words in action (VA)	3. Lead class in repetition drills/oral translation drills (A)	3. Show video once. Practice reading video dialogue in pairs (VK)	3. Write sentences with 20 key words (VK)
4. Show video without sound track —pause to elicit key words (V)	4. Play video sound track (A)	4. Have students create their own dialogue & skit using 20 key words (K)	4. Show video with 20 key words in action (VA)
5. Distribute worksheet to write sentences with key words (VK)	5. Dictate comprehension questions for students to answer (AK)	5. Memorize dialogue in pairs as a role play (K)	5. Listen to sound track—Fill-in blank worksheet (AK)
		6. Act out in front of class (K)	6. Practice dialogue in pairs (VK)
			7. Memorize and perform in front of class with body language (K)

Table 2: LESSON PLANS USED IN TEST CLASSES

Class 3 (K): 49.5, and Class 4 (VAK): 72.5.

The students taught in the multiple-modality class scored substantially higher than those students in classes emphasizing single modalities. From this limited study, we may conclude that methods which use mixed modalities can improve the retention of advanced vocabulary in Japanese university ESL classes.

DISCUSSION

After reviewing the data and literature in the field, it is apparent that the Modality Model may be readily applied to the ESL classroom. Methods can be easily categorized according

Figure 1: STUDENT LEARNING STYLE PREFERENCES
PERCENTAGES BY CLASS

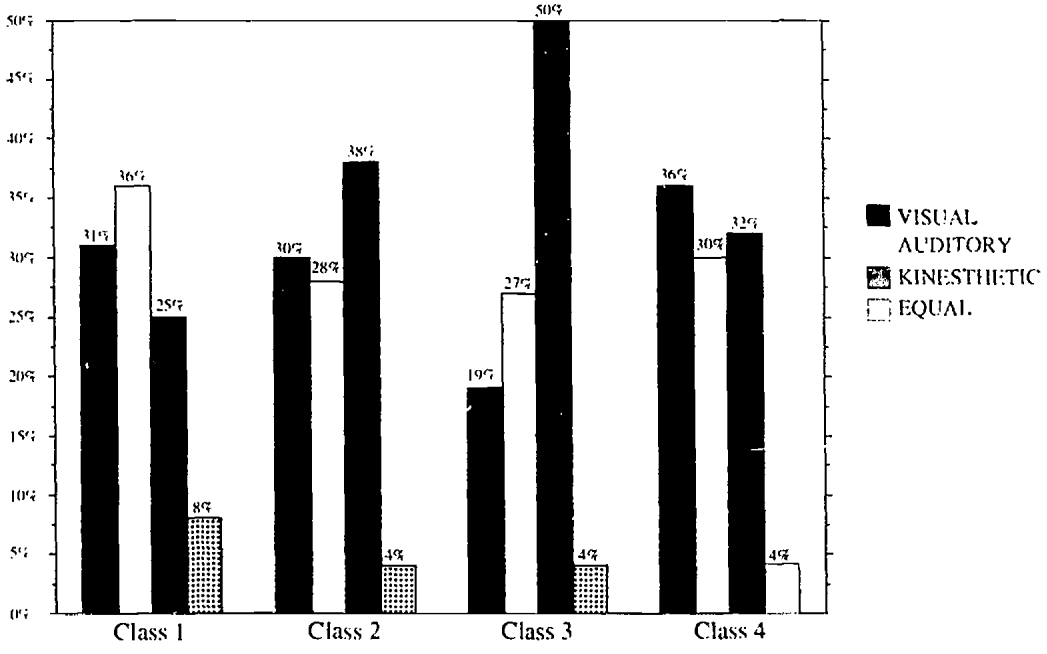
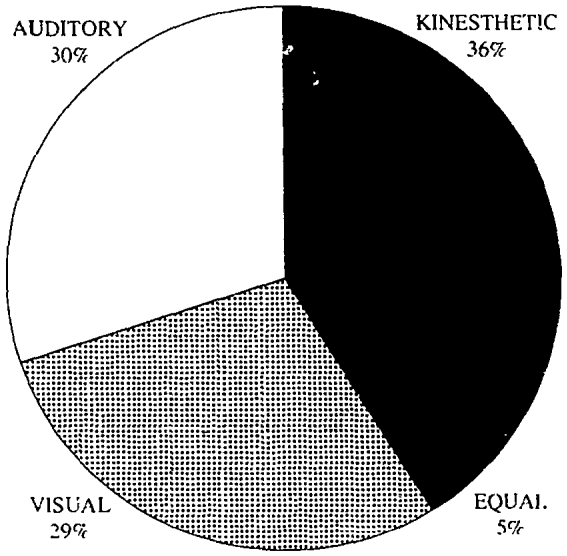


Figure 2: LEARNING STYLE PERCENTAGES OF TOTAL SAMPLE



to the predominant media used in each method, and a teacher can identify the modalities used in each part of a lesson. If it is determined that one modality has been omitted or neglected, then adjustments can be made. The teacher can operate on the general assumption that a variety of learning styles will be represented in every class .

As a teacher becomes more sensitive to modality preferences, it may be possible to differentiate between individual classes and compensate accordingly. For example, if it is determined that female English majors show strong tendencies towards the auditory modality, classroom methods can emphasize discussion, tapes, and other aural media. For the sample group of first-year university males in commercial or economic majors which showed kinesthetic tendencies, a lesson plan should include more role plays, practical exercises, and Total Physical Response (TPR).

There are several shortcomings to this research. The questionnaire in particular, is a simplified survey tailored for classroom application. Its twelve questions may be an insufficient number to accurately assess modality strengths. However, the advantage is quick application and scoring of large numbers of students. Other surveys on learning styles, while presumably more accurate, require extensive time for administration and evaluation. Some questionnaires based on other learning style models contain between 70 and 150 questions and require up to 90 minutes for administering the questionnaire alone.

In addition, this survey did not differentiate between students with extreme preferences from ones whose preferences were more equal.

Figure 3: VOCABULARY PRE- & POST-TEST SCORES BY CLASS

Quite arbitrarily, a difference of two points between the highest and lowest preference was chosen to designate the students with equal preference. Some students, however, chose one modality almost exclusively. An analytic method to compensate for extreme preferences would help to make this research more informative.

IMPLICATIONS FOR LANGUAGE TEACHING

While the concept of modality preferences is probably quite acceptable to most educators, test performance is currently considered far more often as the measure of success in the language education process. Aptitude tests, however, tend to favor students who learn visually or auditorily. In fact, written tests by their very nature put kinesthetic learners at a disadvantage. Not surprisingly, these same students tend to excel when given a language test which requires action, drama or direct practice of the language.

In addition, further research may show that successful language learners are able to function in more than one modality. Learners with mixed modality strengths may have a better chance of success than those with a single modality strength because they can process information in whatever way it is presented. Unfortunately, many schools maintain a lecture-style approach to language teaching which favors the auditory-type learners. To avoid this discrimination, a multi-modal, multi-media approach is necessary.

Application of VAK modality concepts can ensure that all learners have an equal opportunity to hear, see, and do each new item in the lesson. Textbook writers can structure all three modalities into their curriculum. Teachers can evaluate their lesson plans to ensure that students with different modality strengths can all learn effectively. "Tell-show-do" should become standard procedure in the classroom. When a student cannot understand, the teacher can try teaching it through a different modality than it was originally presented.

In the language classroom, auditory learners appreciate clear explanations, discussions, and tape recordings. Indeed, university teachers often rely on this very teaching mode throughout a term, for example, playing a cassette tape with accompanying text each week. This practice might be good for the auditory learners, but can greatly hinder the progress of the visual, and kinesthetic learners.

Visual learners can be aided by the use of videos, demonstrations, illustrated text, and blackboard writing. The kinesthetic learner will want to get involved in dramatized dialogues, role plays, class trips, and intensive simulations.

By recognizing a tendency to present material according to their own style, teachers can begin to adjust activities to meet the needs of each modality learner. The strong auditory teacher, who may tend to verbally explain new vocabulary and skills, can try to add more visual examples and physical involvement to his or her lessons. The strong visual teacher, who may over-emphasize neat work and visual presentations, should also explain lessons verbally, even if it requires repeating what has already been written. Sloppy handwriting and homework may be related to a student's lack of a natural sense of visual order. The strong kinesthetic teacher should realize that not all learners are excited by group projects. Involvement in learning means reading and talking, as well as physical action.

When learners experience difficulty in a lesson, it may be an indication that the teacher is not paying enough attention to individual modality preferences. When a question or problem arises, teachers will often simply repeat themselves more slowly. They could instead provide supplemental instruction, either individually or in small groups, appropriate to the modality strengths of the learner that is having difficulty. Moreover, students can be encouraged to develop strategies to transfer material from weaker modalities.

The importance of utilizing a variety of teaching methods is certainly not a new idea in education. But a thorough understanding of the psychological differences in learning styles can help strengthen a teacher's commitment to use diverse methods and bring a systematic approach to this effort.

CONCLUSION

The intent of this paper was to show the importance of understanding individual learning styles in lesson planning for ESL classes. As stated in our introduction, the first aim was to select a learning style model and then identify the modalities that various language teaching methods utilize. These have been listed in Tables 1 and 2.

The second aim was to apply a learning style questionnaire to a language learning situation. A simple survey was conducted with 200 Japanese university students and found to be a useful tool in quickly identifying learning styles according to modality preference. Within this all-male university student sample, learners showed different preferences for media used in the classroom. Thus, we can conclude that individual students prefer to learn through different modalities and have differing learning styles. This variance was found in every class tested. All classes had a mix of modalities preferred with a maximum never exceeding 50% and a minimum never less than 19%.

Thirdly, we were able to show that multimedia language teaching methods could be mixed easily without expensive technology. Novice instructors with little specialized teaching experience can adjust their lessons to fit individual learning styles with commonly available instructional technology, such as cassette tapes, graphic handouts, videos and role plays.

Lastly, we demonstrated that a multi-modality lesson could achieve almost 20% higher memory retention of vocabulary than similar lessons taught through a single modality. Previous studies concluded that auditory methods were superior to visual ones in language education. This may have been correct in isolation but this research goes farther to suggests that multiple modalities mixed in one lesson are an even better alternative.

Usually, an instructor is biased toward his or her own particular learning style. For example, an auditory teacher will tend to teach an auditory lesson. Such a teacher may use cassette tapes and verbal explanations exclusively during a typical ninety minute class. If that were to happen in the four classes tested in this study, only 20-40% of the students would learn through their preferred media. Therefore, an instructor who is partial to one teaching method might retard the class. This is not saying that single-modality teaching has no benefit. Yet mixed modality teaching will improve current teaching methods by accounting for individual differences in the classroom. By varying the methods and media, language teachers can fit the maximum number of learning styles, and the instructor who is sensitive to individual learning styles will be the most productive.

While the need for multi-media instruction in ESL classrooms may seem to be intuitively correct to many teachers, the theoretical reasons for this have not been known until recently. Common sense and practical experience tell us that variety makes a lesson more interesting and students more motivated. But why does this happen? The answer is learning styles: Students learn through different modalities.

It is important to remember that no learning style is better or worse than another, and that students should not be disadvantaged for having a particular learning preference. Most students can learn a language when their own learning style is accommodated in the classroom.

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Appendix A:

Vocabulary List Taught to Four Classes

routine	escalated	irritation	infection
checkup	secretion	fluid	inflammation
examine	symptoms	diagnosed	evidence
intense	unobjectionable	eliminate	medication
respiratory	antibiotic	clear up	eradicate

Video Dialogue—Going to the Doctor

Doctor: Hello, how are you doing?
Patient: Fine.
Doctor: Why are you here today?
Patient: I've come for my routine checkup.
Doctor: OK, Mr. Hinkelman, before I examine you I would like to ask you a few questions.
Patient: Sure.
Doctor: How have you been feeling lately?
Patient: I've been having intense headaches.
Doctor: Have you had any respiratory problems?
Patient: Yes, I've been smoking a lot lately. It's escalated to more than one pack of cigarettes per day.
Doctor: Have you had an irritation in your chest?
Patient: Yes, I've been coughing quite a lot.
Doctor: Have you had any ear infections?
Patient: No, not recently.
Doctor: Have you had any secretion of fluids from your ears?
Patient: No, but there's some inflammation in my neck.
Doctor: OK, let me examine you now.
Patient: Go right ahead.
Doctor: OK, Mr. Hinkelman, from the examination and the symptoms you have told me about, I have diagnosed you as having a slight infection in your chest. The evidence shows that you have been smoking too much. If it is not unobjectionable for you, you should eliminate smoking cigarettes.
Patient: OK, that's fine with me.
Doctor: Also, I will give you two weeks of medication of antibiotics to help clear up your chest infection. If you try to eradicate smoking, your health will become much better.
Patient: Thanks, I'll try my best.

Appendix B: Learning Style Questionnaire. Source: ICA (1988)

What is your Learning Style?

Everyone learns differently. I want to know the way that you enjoy learning English.

Think about what you like best—not what other people say you should do.

There are 3 answers in each line. Write number "3" next to the answer you like best. Write number "2" next to the answer you like second best. Write the number "1" next to the answer you like least.

1. I learn best by		
a. ____ seeing something written	b. ____ listening to an explanation	c. ____ doing it myself
2. To find a place, I ask someone to		
a. ____ draw a map for me	b. ____ explain it to me in words	c. ____ take me there
3. In my free time, I like to		
a. ____ read, draw, watch TV	b. ____ talk, listen to music	c. ____ play sports, drive, cook
4. I plan something by		
a. ____ making a list	b. ____ discussing with others	c. ____ experimenting
5. I like to contact friends by		
a. ____ writing a letter	b. ____ calling on telephone	c. ____ visiting them
6. My ability is better in		
a. ____ drawing, or math	b. ____ conversation with people	c. ____ working with machines
7. I like to learn a computer by		
a. ____ reading a manual	b. ____ having someone explain it	c. ____ trying it myself
8. After a party, I want to		
a. ____ see the photos	b. ____ talk about it	c. ____ do it again
9. I am sensitive to		
a. ____ color, design, decor	b. ____ noise, music, bird sounds	c. ____ moods, feelings
10. In any class, I like		
a. ____ using textbooks	b. ____ listening to explanations	c. ____ practice exercises
11. I learn English best by		
a. ____ watching English videos	b. ____ listening to English tapes	c. ____ meeting a native speaker
12. My personality is best described as		
a. ____ an observer	b. ____ a listener	c. ____ a doer
TOTAL		
a. ____	b. ____	c. ____

The column with the highest score shows your strongest learning style

Can Japanese Children Learn English?

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David Paul

Most Japanese elementary school children who learn English have lessons once a week and have little exposure to English in their daily lives. The spoken English they learn in the classroom is not reinforced enough at home and is almost never needed in real communicative situations, so English tends to have little more than novelty value. The children are often able to mimic patterns like "Hallo! How are you?" or "Fine thank you, and you?" when they meet a foreigner in the street and they may become good at singing the ABC song and Ten Little Indians, but so much of the rest of what they learn remains as passive knowledge or language they can only produce in the artificial world of the classroom.

There are elementary school children all over Japan who have studied English "conversation" for years but can hardly put two words together. Is it really possible for these children learning once a week to build and retain structures? Can they learn to sustain a conversation? Can they learn to read and write? Can they learn to speak with confidence and spontaneity? At first sight it might seem that this is hoping for too much, but having seen hundreds of children achieve all these goals I am convinced that the answer to all these questions is very definitely "yes".

So, what is the magic formula? Of course, there is no simple answer to this question, but we can start by seriously questioning the appropriateness of methods and materials which have been developed for children learning in Europe or North and South America. Even methods which have been developed in Japan have often been too heavily influenced by approaches more suitable for native speakers learning their own language or for children who are familiar with the Roman alphabet.

This interference from approaches designed for very different situations has often led to ineffective methods being used by teachers in Japan. I will focus on two specific areas "games and songs" and "reading and writing" to show what I mean.

GAMES AND SONGS

Most teachers would agree that games must play a central role in any successful approach to teaching children. We only have to see the relief on a child's face when she is released from an academic class and can run and play with her friends to see that games are at the core of her sense of reality. The more learning English feels like a game, the more naturally and deeply she will acquire new language and the more English she will be able to use spontaneously outside the classroom.

Although teachers will generally agree on the importance of games, we can find quite wide differences in the way games are used in the classroom. There seem to be three main kinds of approaches: Experience approaches; Study + Fun approaches; and Fully-integrated approaches.

Experience approaches

In these approaches, the idea is that children should play games, sing songs and generally experience English with their senses. Typically, the children play with colors, play games like Bingo, and sing songs like Old MacDonald or Ten Little Indians. It is generally thought that children should not be taught "grammar". Thus, activities tend to be selected because they are fun and because they fit the general theme of a lesson. A song like Old MacDonald might be sung in its original version even

David Paul has been teaching English in Japan for the last twelve years. Ten years ago he started the first of five schools in an apartment in Hiroshima. These schools now have 60 teachers and over 3000 students. He is the author of Finding Out. *(See the review in this issue.)*

though it contains vocabulary and a tense (the past tense) which the children can only mimic. Other activities like Bingo or the ABC song might be repeated many times, long after they their language content has ceased to be particularly useful.

Personally, I find this kind of approach reasonably effective with kindergarten children, as long as the language in the games and songs is kept simple, but I often wonder why the same methods continue to be used with elementary school children. From about six years old, children can learn far more than Experience approaches give them credit for.

The main reason why these approaches are so popular is probably that it is thought that young children in Britain or America learn much of their basic English in games, songs, and stories, and so Japanese children should experience English in much the same way. Another reason is that Experience approaches have been employed very successfully with second language learners and a lot of materials and methods have been developed for these children. Understanding the way native speakers first learn language can lead to some valuable insights into how to teach Japanese children effectively, but it is also important to recognise that many of the conditions we face in a classroom in Japan are totally different from those under which an American child learns English or an immigrant child learns English as a second language. American children are exposed to English all day every day while Japanese elementary school children generally learn English for only about one hour a week and make little progress if they are expected to learn by just experiencing and sensing language. They need to make much more efficient use of time.

American children also have the confidence and motivation to speak English and can successfully acquire language which is presented in a relatively uncontrolled way. The confidence and motivation of Japanese children needs to be built step by step and new language introduced in an achievable sequence. This process is very delicate. Presenting insufficiently controled language in games and songs simply turns Japanese children into parrots.

Another important point is that Japanese children are also much older than American children with the same level of English. The way an American baby or pre-school child will learn how to use words like "want" or "like" is bound to be different from the way a Japanese eight or nine year old will learn these patterns. Materials and methods designed for the American pre-schooler will generally be too young for the Japanese child, and songs and games designed for American children the same age as the Japanese learners will usually contain language which is too difficult.

Study + Fun approaches

Many teachers in Japan recognise the limitations of pure Experience approaches. A common alternative is to divide a lesson into "studying" sections and "fun" sections. The studying sections consist of vocabulary or pattern practice, and the fun sections are where language is experienced in such activities as games and songs. There may or may not be any connection between the two. Practice of the present continuous may be followed by a game where this tense is practiced further or it may simply be followed by the ABC Song. The studying parts are where new language is introduced (often by methods which were originally designed for teenagers or adults) and the fun parts are where the children's favorite games and songs are played and sung.

The main problem with these approaches is that the children tend to compare the studying sections with the fun sections, and studying new vocabulary and patterns comes to be seen as boring when compared with playing Bingo or Concentration. Thus, playing games comes to be seen as more interesting than learning English. This tendency is reinforced by the teacher who says (in Japanese of course) "If you study hard, we'll play a game" or "If you don't stop kicking Kenji, we won't play Bingo". Very often, the teacher has to struggle to get the children to practice any new language, and over time the "studying" parts gets shorter and shorter and the "fun" parts gets longer and longer. The children often become less interested in learning English and simply want to play games for their own sake.

Fully-integrated approaches

So if they want to play games, why don't we let them? Why does there need to be any distinction between language practice and fun? A lesson can be all language practice and it can be all fun. Vocabulary and patterns can be introduced and practiced in carefully designed games. A lesson, and indeed a whole course, can feel like one big game to the children and yet the language content can have a very clear direction.

As teachers, we need to be very aware of making efficient use of time. We can have a clear idea of what we want to happen in a lesson, and we can introduce new language targets at a steady achievable rate. But this can all be done in games or other activities which are never dry and where the children are fully involved. I would go as far as to say that there should be no games or songs which are just played or sung for their own sake and certainly never for discipline reasons. It is not just unnecessary to do this, it actually harms the children's attitudes towards learning English.

It is the children's feelings that are crucial. They can learn and retain all the language in a carefully planned and systematic course as long as they feel it is fun and as long as they feel they are learning for themselves. They should never feel that they are "studying" or "being taught" something by the teacher. They learn most effectively when they are enjoying discovering new language for themselves in games where the language content gradually gets more difficult. The teacher's principle role is to carefully design games and songs to suit the language needs of the children. The children just play and sing. In Fully-integrated approaches, learning English and fun become inseparable, and maximum use is made of the limited time available.

READING AND WRITING

Over a period of about seven or eight years, one of my jobs was to interview elementary school children. These children had learned English at many different schools and for varying amounts of time. The vast majority of these children could produce very little English. However, there were exceptions. There were some children who had clearly been able to retain much more English than others. I became very interested in finding out what methods had been used to teach these high performers.

A very clear pattern began to emerge. The children who had learned to read and write as well as speak performed consistently better in the oral interviews. They could clearly remember much more of what they had learned. I can only speculate as to what the reasons are. Perhaps it is because reading and writing help to consolidate and solidify what is spoken. Perhaps it is because if the children can read and write, they can practice English more effectively at home between lessons. Maybe there are other reasons.

But the majority of the children had only learned to speak, and possibly read and write, the alphabet and a few simple words, and this was after having English lessons for up to five or six years! Why is it that so many teachers are reluctant to teach children to read and write? I have many chances to meet and talk to teachers of elementary school children, and I often try to find out the answer to this question.

Some teachers say that junior high school children have to learn so much reading and writing that it is better for younger children to just learn to speak. This is an understandable view, but the fact that the four skills are badly balanced in junior high school does not really justify teaching them in an unbalanced way to elementary school children too.

Other teachers say that it is too difficult for Japanese children to learn reading and writing. But having seen thousands of Japanese children learn to read and write sentences and quite difficult words, I know that this is not so. It is more likely to be the method that is to blame.

One problem is that so many textbooks have been written in Europe or America for children who use the Roman alphabet in their native language. Of course, the sequence at which reading and writing are introduced in these books is too difficult for Japanese children. One example of this is that so many of these books jump straight from ABC into whole words or even sentences, but Japanese children

need to spend quite a lot of time seeing how letters are joined together before they can make this jump. Courses produced in Japan, probably influenced by courses written in Europe or America, tend to use the same kind of approach. It's not surprising that so many teachers say that reading and writing are too difficult for Japanese children!

Let's take a closer look at methods of teaching reading and writing. I suppose there are two main approaches, the Whole-word approach and the Phonic approach.

The Whole-word approach

In this approach, children learn words like "cat", "dog" and "book" as independent words. Teachers very often feel this is the "natural" way to learn reading and writing because native speakers generally learn in this way.

But there are fundamental differences between the situation of native speakers and Japanese learners which make the Whole-word approach inappropriate for Japanese children. The main problem is that this approach depends on reinforcement—to learn to read and write the word "cat", a child needs to often see the word around her in her daily life. In America or Britain this is no problem, but in Japan children do not get this kind of exposure to English.

So when Japanese children learn by the Whole-word approach in once-a-week lessons, they make little progress. They are often able to memorise the spelling of some of the basic words but their progress is very slow and they soon reach their limit. They generally end up just copying from the teacher or text book.

The Phonic approach

In this approach, children do not pronounce the letters "ABC...." as they are pronounced in the alphabet but as they are most commonly pronounced in basic words. ("A" is pronounced as in "apple"; "B" is pronounced "buh"; etc.) The idea is that instead of having to memorise the spelling of individual words, the children are trained to recognise patterns. If the children can read and write "cat" they should be able to read and write "hat", "mat" and "bat".

In Japan, the Phonic approach has many advantages over the Whole-word approach. It does not depend so heavily on reinforcement, it does not assume that children know how to join letters together to make words (this is very important in a country which has a different writing system), and it is compatible with the way Japanese children learn hiragana and katakana.

However, the approach has often been used in a mechanical and unnatural way. The children have had to learn rules like "magic e", memorise combinations like "ough", and read sentences like "Ted and Pat sat". The rules and complicated letter combinations are something which many native speakers can take in their stride, but they only serve to weaken the motivation and confidence of Japanese children.

The key to teaching Japanese children to read and write effectively is to minimise the number of sounds which they have to learn, and maximise the time to play with these sounds. It is only necessary for the children to learn the alphabet and about twenty letter combinations (ee, ea, ch, sh, oo, oo, ar, ou, or, or, ir, ow, ow, oy, oa, ai, ay, er, th). They can then play lots of games where these sounds are joined together in many different combinations (both real words and non-words), and they soon develop the confidence to try and read and write any new words they may encounter.

Phonics is only a starting point. Words with irregular spelling need to be introduced at a rate which does not threaten the children's confidence and willingness to "have a go" at reading and writing new words.

Conclusion

Before we can establish an effective method of teaching Japanese children, we must seriously question approaches and materials which have been developed in Europe or America. At present, many of the methods used for teaching Japanese children are based on ways of teaching native speakers, English as a second language learners and children who use the Roman alphabet in their own language. Japanese children *can* learn to speak, read and write English as long as our teaching methods are right for Japan.

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Concordancing in the Language Classroom

Irene F. H. Wong, Dorothy Cheung & Lai Phooi Ching

Recent approaches to the teaching and learning of language have touted the importance and effectiveness of the "self-discovery" method of language learning, and various methods have been suggested which help language learners to discover for themselves the rules or patterns which make language work. One suggestion which has excited many in the field of ELT is that of using the concordancer as one of the tools to help language learners in their self-discovery process. Concordancing is now available on microcomputers, and concordance programs have become commercially available (e.g., Longman's *Mini-Concordancer*, Tim Johns' *Micro-Concord*, and OUP's *Micro OCP*). Several books have also been published describing the use of concordancing in the language classroom. (See, for example, Tribble & Jones, 1989; Bongearts et al., 1988; Johns and King, 1991; and Higgins & Johns, 1984.)

Of course, a concordance itself is not a new thing. It has been used for decades by academic researchers in such fields as computational linguistics, lexicography, and stylistics. But the suggestion that it can be of help in the language learning context is a relatively recent one.

The concordancer is a computer program that stores huge amounts of text and rapidly searches through it for any specified word or phrase, displaying it, together with its immediate context, for whatever purpose the user requires. Through this display, then, language learners are presented the linguistic context for any word or phrase they are interested in, for example the modal "would" or the phrase "would have been doing". The program then displays all occurrences in its data bank of the word or phrase in question, together with the contexts to the left and right of it, as illustrated in Figures 1 and 2.

This is all the program does. The rest is up to the language learner. The thinking behind this is that once the data has been systematically arranged, it is then available to the learner to discover for himself or herself the rules governing the behaviour of the word or phrase in question. The real benefit of the concordancer is that, by sorting rapidly through huge amounts of text and displaying the contexts of only the word or phrase specified, it enables the user to discover patterns that exist in language use that would otherwise not be as easily visible.

Our purpose in this article is to describe our study using the concordance-based approach with our students, focusing on (1) whether the use of this method of teaching/learning helped them better grasp some of the "rules" of grammar, and (2) their reaction to the use of concordance data to help them discover for themselves the patterns in English which they had not been sure of.

Profile of language learners

Our students are Accountancy, Business and Engineering undergraduates for whom English is a second language, though it is the medium of instruction for all levels of education. One of the problems our students experience in their attempts to master the language as they study to become professionals in their chosen fields is with specific aspects of grammar such as the use of articles with noun heads, the various

Irene F. H. Wong, Dorothy Cheung, and Lai Phooi Ching are Senior Lecturers at Nanyang Technological University. They teach Communication Skills and English Proficiency to Accountancy, Business and Engineering undergraduates. Their research interests include the use of computers and data-driven materials for language teaching as well as for research purposes.

inflectional forms of the main verb in different types of verb phrases, consistency in the use of tense, the modal auxiliaries, and prepositions. What we provide in areas of grammar is therefore remedial work, and for this purpose and for our types of students, concordancing in the language classroom seemed to offer much potential.

The concordancer

We used Tim Johns' *Micro-Concord*, which allows the user to select one of two forms for data display, the first by displaying the entire sentence in which the keyword occurs, and the other by using the "keyword-in-context" (or KWIC) format which arranges the keyword systematically one below the other down the centre of the page, with a fixed number of characters of context to the left and to the right.

The advantage of the first format, of course, is that the entire context is available, up to the sentence level. However, the disadvantage is that the keyword in question is hidden within the sentence, appearing at various parts of each sentence displayed, so that patterns and relationships may not be too obvious to the user, as exemplified in figure 1 below for the keyword "would".

The advantage of the KWIC format is that the keyword is obvious at a glance, as is its immediate left and right contexts, for easy discerning of patterns and relationships by the user. However, the disadvantage is that sentences are truncated on both sides, with the result that there may not be sufficient context provided for users to base their hypotheses on. Figure 2 below gives an example of data for the word "industry" in this KWIC format, for learners to try to discover for themselves the rules governing the use of the articles (definite and zero) with this head noun.

Classroom applications

In a classroom situation where classes are held in computer labs, with each student (or two at the most) having access to one computer, students could be taught to use the concordancer themselves. Thus they would call up the relevant key words on the program, and get the display (either on the screen or in printed form) of the data on which they could do their analysis.

Figure 1: Concordance display for 'would' in the sentence format

•A meaningful cost accounting system would measure cost centre resource consumption.

•The tempering furnace still would be scheduled to operate at full capacity, regardless of product mix.

•Decisions to drop a product line or schedule a small volume decrease would not result in labour cost savings because shift labour crews, rather than decreasing, would be assigned to work on other jobs, projects, or setups and be changed from direct to indirect labour.

•For example, total hours in the tempering furnace, representing a bottleneck operation, would be a constant amount, representing practical capacity.

Figure 2: Concordance display for 'industry' in the KWIC format

ertise concerned with the needs of industry and the business community. The
cellence for finance, commerce and industry within Southeast Asia. Indeed t
tion. These pressures are forcing industry to search for solutions and the
led labour. In the coming decades industry will look to automation to help
apacity in the restressed concrete industry at the moment for a very wide va
important to raise $2 million from industry, their main target being computer
w shun the well-paid construction industry. The full employment economy a
the problems, both in the building industry and the architects who are desi
techniques. The Singapore building industry has adapted successfully to new
truction workers. This has led to industry becoming dependent on foreign wor

In a classroom situation where language classes are big, and there are more students than available computers, the concordance-based method of instruction is still possible. The instructor can use the concordancer himself or herself and provide students with hard copy versions of the relevant (unedited) printout on which they can then do their analysis. This is the practice we followed in our language classes.

If necessary, this second method also gives instructors in more elementary language classes the freedom to edit the printout, mainly by removing irrelevant items from the data so as not to confuse the students. For example, the concordancer would list all occurrences of the word "have", not distinguishing between its use as an auxiliary verb or a main verb. For beginning language learners, data could be edited to eliminate occurrences of "have", "may", for example, which do not function as auxiliary verbs.

A second possible area of editing for elementary language learners is to further arrange the data into sets, for example "will" when it is followed only by the main verb in one set, "will" followed by "have" and the main verb in another set, and "will" followed by "be" in yet another set, regardless of whether or not there were intervening adverbials in each verb phrase. (For beginning language learners, even more editing can be done as initial steps to help them eventually graduate to using the concordancer on their own, like underlining or boldfacing the main verb if they are unable to identify it.)

The purpose of editing in classes of students less advanced than ours would be to make things easier for students, and as an introduction to the use of the concordancer for language learning. The ultimate aim, of course, is to have them graduate to the point where they can use the concordancer for themselves, for self-accessed and self-paced learning, whether in small groups or individually.

Figure 3 below gives samples of concordance data for some of the auxiliary verbs, arranged in sets and with the main verbs boldfaced for easy recognition by beginning students.

Since the concordance-based approach was very new to our students, we spent some time introducing them to what a concordancer was, and the purpose of the approach. Then we took them through a short concordance-type exercise, giving them a little time to familiarize themselves with the approach and the method of data presentation.

After completing one short exercise with them, we divided them into small groups of two to four, to discuss and check hypotheses among themselves, and do the exercises together, constantly encouraging them to refer to the concordance data whenever necessary, since

Figure 3: Edited concordance for the auxiliary verbs

assumed that traffic responsive systems	would **provide** more efficient signal contro
al or economic solution, since vehicles	would always **operate** inefficiently with deta
is used to confirm whether the route	will in general **follow** a particular stream
to be led into drainage channels which	will eventually **discharge** into existing wat
n of silt build-up in the system, which	could **cause** blockages and subsequent for
in the short term, but it is one which	could well **give rise** to even greater proble
eway are not normally provided, as they	can **cause** variations on the formation char
ntion the part which project management	can **play** in calculating the financial conse
ion values between the two test lengths	could be **interpreted** as being due to differ
f congestion and the cost of investment	could not be **tackled** on a piece-meal basis
epresents the total transport cost that	would be **incurred** if a given form of reha
.741 standard axles. 274% more damage	would be **caused** by a UK legal axle than
ducts and their effect on flood levels	can be carefully **studied.** These studies dista
is used for reclaimed material which	can usually be **compared** with a characteristic
design and earthworks design generally	will all be **affected** by the hydrological st
ment. In cuttings the drainage required	will be **provided** to protect the top of the

this was one of the key functions of providing them the data.

We found that such an approach was better appreciated by the students than if they had been left to do the work individually. It was even more appreciated when the instructor joined in the process of discovery and hypothesis-testing with them, not necessarily in the capacity of someone who knew all the answers, but in the capacity of someone going through the same discovery process together with them, or at least guiding them and pointing out things for them along the way. The discovery process being a shared one seems to be one of the strengths of an approach using concordancing in the language classroom.

The experimental study

Based on our knowledge of our students' weak areas in grammar, we selected two types of grammatical exercises, one based on the inflectional forms of the main verb in various types of verb phrases, and the other on the use of the article (definite, indefinite, zero) with specific noun heads. These represented two different types of exercises which could be used with the concordancer, the first with a grammatical item that was quite systematic and whose behaviour could be easily discerned from the data given, the second of a grammatical item that has caused many problems to learners of English and foiled many attempts by even the most skilful teachers to teach it. Our aim was to see how concordancing would work with these two very different types of grammatical problems our students have.

We tried out the concordance-based approach on three groups of students, totalling 288 in all. The first group used the approach only for the grammatical problem of verb forms, the second only for the problem of articles, while the third group did both. In order to try to get their reactions to the use of this approach for helping them with their particular grammatical problem, we issued questionnaires to each of these three groups of students.

The majority of the students overall (69%, with 18.8% remaining neutral) said that they found the approach useful in helping them discover for themselves how certain grammatical items worked. However, it was more interesting to note the breakdown of the responses according to what grammatical items the students worked on. Of the first group of students, who had worked only on the verb forms, 78% said they found the approach useful, while of the second group, who had worked only on the articles, only 54% said the approach was useful. For the third group, who had worked on both types of exercises, 75% found the approach useful.

On the question of whether the KWIC format posed any problem, we received both positive and negative responses, depending on the kind of grammatical items the students worked on. As expected, the KWIC format worked very well for those groups which studied the auxiliary verbs and the verb forms, with 100% of the first group of students saying that they liked it and that the truncated sentences gave them no problem whatsoever. They felt that whatever context was provided was sufficient, and that the arrangement of the data had helped them focus on the grammatical items in question. In fact, their response to the exercises they had to do was that these were "too simple", and they asked for more difficult sentences and exercises to do. But these same students had had problems with the same grammatical point before having been exposed to the concordance data, so that it would not be wrong to assume that it was the presentation of the data (and its format) that had made the task such an easy one for them.

However, those who worked with the articles found themselves particularly hindered by the truncated sentences, so that only 30% said that the arrangement of the data helped them focus on the grammatical item to be learnt. These students were especially vocal in their comments on the truncated sentences, with statements such as "truncated sentences confusing", "too short", "can't get message across on first look", "attention diverted to figuring out what was before the truncation", and "wasted time in trying to figure out context". All indicated that they would have liked longer and complete sentences.

The third group of students fell in-between the two extremes. They had worked on both

types of grammatical exercises, so that their experience with one should have balanced against their experience with the other. However, it appeared that their negative experience with the articles had a stronger influence on their rating than their positive experience with the verb forms, judging from the comparatively low percentage (57%) of their positive responses to the format used.

Figure 4: Positive Responses to the Concordance-based Approach and the KWIC Format

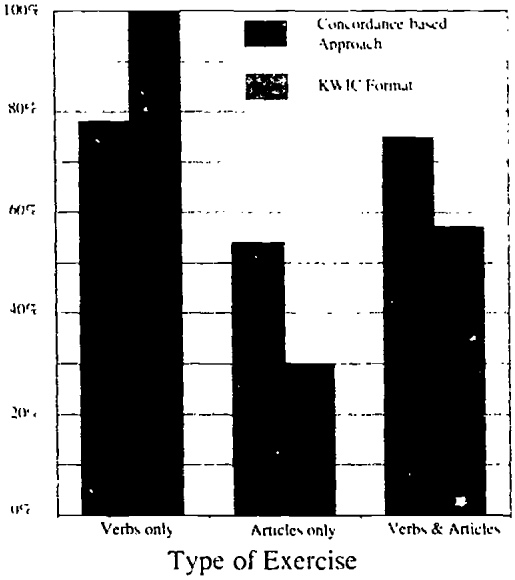

Figure 4 shows the percentage of each group of students who responded positively to the concordance-based approach and the KWIC format used.

Evaluation of students' progress

We prepared a test on the use of articles and verb forms to get quantifiable evidence on what improvement, if any, the students showed after they had been exposed to the concordance data. Our sample population here was 110.

We first gave the students a pre-test, which they did without having been exposed to the concordance data. They did not know how they did in the test, nor was there any discussion of the answers. Two weeks later we gave them the same test again, after they had gone through the concordance data. This we call the post-test.

As far as the scores for verb forms went, there was significant improvement in the post-test: 91 students scored 100% as compared to 61 in the pre-test, an increase of 27.2%. The greatest difference in scores was seen in the weaker students, who in the pre-test had scored as low as 8 to 12 out of a total of 20 possible correct answers, but had at least 19 correct answers in the post-test.

However, in the test on articles, the improvement was only marginal: Test scores showed only 15 out of the 110 students (13.6%) with some improvement in their scores.

Conclusion

Results of both our questionnaire and the pre- and post-tests confirm our observation that not all grammatical items lend themselves to using the concordance-based approach to language teaching/learning. The approach appears to be very effective when shorter con-

Table 1: Type of Grammatical Items and their Appropriate Concordance Display and Classroom Approach

Grammatical Items	Concordance Display	Class Approach
Rule-based Systematic behaviour *e.g., verb phrases* *prepositions*	KWIC format	Individual Self-access
Meaning-based Dependent on context *e.g., modals* *articles*	Entire sentence	Pair/group work

texts (e.g., verb phrases, prepositional phrases, and active-passive voice) are sufficient for the discovery of the "rules" which govern the use of a particular word or morpheme. For other grammatical items like the use of the articles, tense and modals, which require far more context and are more meaning-based, the concordance-based approach might not be as effective. Table 1 shows the two types of grammatical items studied, and the types of concordance display and classroom approach most suited to each.

In the final analysis, our experience with using this approach with our type of ESL learners has made us firm believers that there are many other possibilities which bear further experimentation. We therefore urge language teachers to try out the use of concordancing for various other pedagogical purposes and in various other roles in their own contexts. We believe that the approach is a beneficial one, not only from the language teacher's point of view but, perhaps more importantly, from the students', too.

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BRIGHT IDEA

Jigsaw: Cooperative Learning for EFL Students

Anita Lie

There are various kinds of cooperative learning methods. These differ in philosophy of education, nature of learning supported, kind of cooperation, student and teacher roles, and communication. This paper concentrates on the use of Jigsaw and its variations for EFL students at the secondary level.

Jigsaw was originally developed by Aronson et al (1978) as a means to promote positive race relations. The basic premise is that giving students the opportunity to share with others and to teach and be taught by their peers is essential in the life-long process of learning and socialization. Furthermore, Johnson et al (1981) have found that instruction based on cooperation and collaboration results in significant gains in achievement, social development, and self-esteem.

As such, Jigsaw embodies the concept of peer tutoring in its efforts to help students read and learn from text. It is designed to increase students' sense of responsibility for their own learning and that of others; not only must students learn their assigned material but they must also be prepared to share and teach that material to other members of their team. Thus, students are dependent on one another and must cooperatively work together in order to learn the material.

Although research is very limited on the success of Jigsaw with EFL students, the existing evidence and theory suggest that this method can contribute in several important ways. First, in Jigsaw, each group member is given primary responsibility for a unique part of the unit and is expected to teach and be taught by his or her peers who are assigned other parts of the unit. Second, Jigsaw provides opportunities for face-to-face interaction among students around school tasks. It is important that teachers provide students with frequent opportunities for interactions that resemble those in real life. A grammar-oriented class will not enhance language acquisition because students see very little or no relevance of the grammatical exercises to the authentic use of the language. Third, the Jigsaw method can improve intergroup relations and increase self-esteem (Slavin, 1983). This will greatly advantage EFL students who are rather inhibited about speaking in the target language. This inhibition is attributed to many cultural, social, or/and psychological factors. As suggested earlier, instruction that is based on cooperation and collaboration will result in significant gains in achievement, social development, and self-esteem. The cooperative atmosphere of working in a small group may greatly motivate students and give them confidence to use the target language. Using the language interactively may, in turn, help develop "affective bonds" among the students who are encouraged to work together. Carl Adams (1989) suggests that the use of the technique has both cognitive and affective advantages.

Finally, the use of Jigsaw method may benefit students of both sexes. Studies show that males tend to excel in competitive situations (Maccoby & Jacklin, 1974). Similar research finding suggests that competition does not facilitate girls' learning (Fennema & Peterson,

Anita Lie is a lecturer at the English Department of Petra Christian University, Surabaya, Indonesia. She is currently working on her doctorate in Curriculum and Instruction in the School of Education, Baylor University, Waco, Texas.

1987). Many classroom teachers are not aware that effective teaching is not always the same for males and females. In fact, many classroom interactions are highly competitive and may harm female students' achievement. As a cooperative learning method, Jigsaw may benefit female students and facilitate their learning, without necessarily harming male students because there is still a place for competition in Jigsaw. But instead of individual competition, Jigsaw places students in intergroup competitions and gives rewards in recognition of high-scoring teams. Intergroup competition during the early phase may stimulate students to learn better and to help one another with greater enthusiasm.

In Aronson's Jigsaw, students are assigned in a group of four or five and read sections different from those read by their teammates. This has the benefit of making the experts possessors of unique information, and thus makes the teams value each member's contribution more highly. They are told that after the discussion, each person will be tested on his or her knowledge of the whole text. Clearly, the students have to depend on one another to learn all their material (Aronson et al., 1978). The most difficult part of implementing Jigsaw is that each section must be written in such a way that it is comprehensible by itself. Existing materials can rarely be divided neatly into sections that make sense without the other sections (Slavin, 1990). Accordingly, Slavin developed Jigsaw II.

In this method, all students read all the material, which may make unified concepts easier to understand, but concentrate on the assigned section. Slavin also suggests some variations for using Jigsaw II, such as having students search a set of classroom or library materials for the information. Furthermore, after the sharing of information, students may write essays or give oral reports instead of taking quizzes. Jigsaw is one of the most flexible of the cooperative learning methods.

Several modifications can be made that keep the basic model but change the details of implementation. Other variations of Jigsaw include Strip Story (Gibson, 1975), Jigsaw Picture Stories (Adams, 1989), Jigsaw Storytelling (O'Neill, 1983), and Jigsaw Listening (Adams, 1989).

Strip Story is a jigsaw activity which requires students to piece together parts of a language puzzle in order to complete a task. In this activity, a short story of approximately ten lines is prepared by the teacher (or created by student groups). The story is typed line for line and then cut into long strips. These pieces are shuffled and distributed to different members of each group. The number of lines should be adjusted to fit the number of students in each group. Each student takes a strip of paper and silently memorizes its message/content for approximately one minute. After the papers are collected, students reconstruct and piece together the story as they individually tell their message to the group. After retelling their finished stories, students write them up as a group composition (Gibson, 1975). Adams (1989) suggests that students can also generate their own additional endings to the stories. These Strip Story activities will be most appropriate for beginning or lower intermediate levels since their task is only to memorize one line. Another advantage of this activity is that the four basic skills of reading, writing, speaking, and listening are practiced integratively.

Jigsaw Picture Stories is another technique which employs many of the same procedures found in Strip Story. Instead of reading sentences, the students are given a sequence of pictures to reorder and tell as a story. First, the class is divided into four equal groups. Each group gets a different large picture to look at and describe to each other. Students are unaware that their picture has been taken out of a set or sequence of pictures which tells a story. Students are given time to discover the necessary vocabulary and to discuss what the picture is about, then the picture is removed from each group. Next, students, usually in pairs, are sent to join new groups where each pair has one of the four different pictures to describe to the other three pairs. Eventually, a story line emerges when they realize that each of their

pictures are part of a story. Finally, they construct their own story and prepare to retell it to other groups who have been working on a different set of pictures. Here, as in Strip Story, the final product of the finished story is not as important as the process of the students' interaction while searching for words to describe and tell others about their pictures (Adams, 1989).

Jigsaw Storytelling is designed to capture the interest and attention of students in large classes. The technique promotes the skill of general or "gist" listening comprehension, while encouraging students to discover the meanings of unfamiliar words from their context. The first step is to choose two stories, neither of which should be longer than twelve sentences each. The stories can be taken from the newspaper or some other source. If necessary, the teacher can simplify the grammatical structure or vocabulary of the stories. The teacher then thinks of a short headline or title for each of the two stories and writes these on the blackboard. Next, the teacher discusses with the class what kind of story might lie behind each headline. The teacher then begins to read the stories, line by line, but mixing the lines of one story with those of the other. As each line is read, the class says which headline the sentence belongs to (O'Neill, 1983).

An audio variation of Jigsaw techniques, Jigsaw Listening, engages small groups of learners in various listening and comparing tasks. As before, the class is divided into small groups with each group listening to a separate tape segment. Then, after confirming the details of their tape segment, students retell their part to other student groups who have been working on different segments of the taped story or dialogue. Once again, listening comprehension provides students with an abundance of material with which to interact while searching for words to describe and tell others about their own taped segments (Adams, 1989).

The advantages of using the Jigsaw techniques are evident in the increased amount of communication skills and student interaction in the classroom as well as their increased self-esteem. Students learn to speak up and assert themselves by relating what they have seen and discussed with previous group members. Also, students feel more secure as they can depend on their group, a partner, or the teacher to help whenever they have problems expressing themselves. Furthermore, as students become wholly involved in using the target language to complete the given tasks, motivation is no longer a major factor. There may still be some problems with the use of the native language in the classroom, but it should remain minimal with the increased student involvement.

The main disadvantage of using the Jigsaw techniques may be the amount of time and effort required of the teacher to produce the materials. Preparing the materials involves reproducing the originals, "whiting out," cutting and pasting, and indexing them for future use. However, the teacher will find that their extra efforts are worthwhile. Besides, once materials are produced, they can be used over and over again for other classes. Other concerns about Jigsaw need to be mentioned. Sometimes, no matter how well teams are planned, team members may not get along. Constant reassignments of team members will cause problems. A predominance of slow learners in one classroom may cause problems with the student balance teachers are trying to achieve across teams. It may be that a slow learner has to be paired up with a high achiever so individual and team learning can be more effective (Tierney et al., 1990). Finally, existing materials sometimes cannot be easily divided into sections that stand by themselves.

A tremendous amount of research has been conducted concerning cooperative learning, the basis of Jigsaw. Results consistently indicate that students engaged in such learning achieve more, have better attitudes toward learning, and feel more positive about themselves. Even so, Jigsaw and other cooperative learning techniques are not frequently used. The lecture method is still the predominant means of instruction in the classroom, and teachers, by and large, feel uncomfortable us-

ing small groups. Teachers who feel that chaos will result if small groups are used will probably not use this strategy. In the case of EFL students, however, teachers should realize that the lecture method is not the most effective one because students need to use the target language communicatively. The cooperative learning activities seem to be a necessary and corrective step to help facilitate student interaction and increase their self-confidence in using the foreign language.

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Forum

Technology in Language Teaching

Education and CAI

P. L. Knowles
DynEd International, Inc.

Computer assisted instruction (CAI) and new multimedia technology pose a real challenge to educators. Unquestionably, there are opportunities to increase learning efficiencies and to motivate and engage students in new ways. However there is also the threat of falling victim to the hype which surrounds the new technology. Despite the fanfare, complex problems will not be solved overnight. Thoughtful people know that. Yet there are many who seem eager, if not desperate, to believe in the possibility of a quick fix.

For the educator it will be a challenge to resist the seductive claims made by technologists and sales people who have little if any classroom experience. These people are taught to sell their products by redefining problems so that their products provide the solutions. Educators, by and large, know very little about the technologies involved and are easy prey to misinformation, especially when pressed to spend their allocated budget within a short amount of time. As a result, as has happened already, some schools have rooms filled with equipment that has little utility. Even when equipment has been "donated," teachers are faced with the problem of finding out how best to use it. This results in a real "cost" to the schools. If no useful program exists, then time is spent trying to design something to make the equipment useful. Nobody wants to admit that a mistake has been made.

With that as a brief introduction and warning, let me touch on several key questions that are important in evaluating the strengths and weaknesses of CAI and multimedia computer technology in education.

The Present Relationship between Education and CAI

To many CAI has been a disappointment. Rather than develop effective educational approaches which might be enhanced by computers or multimedia, the dominant trend has been just the opposite: a regression in education to serve the needs of technologists who have rarely consulted with education and curriculum specialists. Hence the resulting dominance of the behaviorist approach on the one hand and "hyperism" on the other.

By behaviorist approach, I mean programs that follow an explicit, direct teaching format, where patterns are learned and assumed to translate into the designated target behavior. very much in accord with teaching strategies that were in fashion twenty years ago. Commonly, such programs present some rule and then a series of pattern practice drills designed to test the student's ability to apply the rule.

The term "hyperism" refers to a computer's ability to store and retrieve vast amounts of data that can be linked in any number of ways. For example, a text or picture that refers to green trees and flowers might be linked to other texts or pictures relating to the seasons, plants, or even mating urges and cycles. Programs have been designed that allow students to learn by wandering through (i.e., "exploring") the data and following whatever "hyper" paths the student wishes to go. This gives the impression of freedom. However the strength

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P. Lance Knowles is President of DynEd International and former director of LIOJ. He has authored EFL textbooks and multimedia CALL titles, including Dynamic English *and* Functioning in Business.

or weakness of this approach varies greatly with how skillfully the hyper links are put into the program by the designer. In some cases, words are linked in a random fashion, which results in programs that lack structure and pedagogical value. In other cases, there is simply a lack of depth to the program. Though the concept is nice, the result is simply too flat to provide anything more than an interesting diversion.

What has been lost in the design of many programs is the very essence of what good courseware should provide: suitable content, a coherent syllabus, and a pedagogical approach which justifies the use of a computer. The result of this has been programs that are inferior to well designed textbooks, but which are slick and seductive in their appearance.

Within the computer industry, the discussion of such issues as curriculum design has been one sided and simplistic. However these are precisely the points which should concern the educator, not the fact that various special effects are new and neat.

Beautiful pictures and high quality sound mean little if they are not well integrated into a series of tasks that varies according to student proficiency and differences in student learning styles. Exploration and browsing are useful when looking through a museum or when gathering data. But as a means for giving students the practice necessary to acquire new skills, such as listening comprehension, reading, or pronunciation, there are problems. Until a student reaches a certain threshold level, choices as to content and method of inquiry need to be limited. It may be that a student's learning strategy itself will need to change. Whether one decides to confront the student directly or indirectly, and at which stage of learning, becomes a key point.

In language teaching, for example, the problem of error correction is such an issue. In one program which I directed I witnessed several times how teachers approached video recordings of student oral presentations. In most cases, inexperienced teachers tended to overcorrect. In a one minute presentation, it was not uncommon for a student to make more than twenty errors of one type or another. The more effective teachers, in my judgement, were able to choose a few errors, five or six at most, and focus on them, rather than overwhelm the student with too much information. In addition, these teachers provided positive feedback by focusing on areas where the student had improved. In this way, the effective teacher was making strategic judgements based on the student's level and on the relative importance of different types of errors.

Many designers, I believe, assume that it is necessary to give students the power to decide how and what they want to study. Their approach is similar to the inexperienced teacher who overwhelms students with inappropriate tasks and feedback without providing the proper buildup. Their response is often to say that it is enough to give the students many choices, which is easy with a computer and hyperlogic. In effect, this means that the hard work of lesson design is left to the students themselves. This is like asking music students to sort through a collection of music and decide for themselves which order they will learn them. This may sound appealing to some. However, in practice, a skilled teacher can be invaluable in guiding the student to choose pieces with an understanding of what kind of technical challenges each piece presents and what order would be best.

At the other extreme, some well-meaning teachers, who in most cases know little about programming, have struggled to create mini-lessons which in general do little more than put book-like lessons onto a computer screen. In this way, much teacher time has been wasted, however enjoyable it might have been for the teacher. These would-be pioneers have been handicapped by not having the specialized skills to design the kinds of authoring tools that would enable them to create exercises that are more than simple multiple choice presentations with a very low level of interactivity.

At the same time, large companies have created expensive programs that utilize beautiful graphics, animation, special effects, and

full motion video, but which lack any sense of syllabus design, depth, and meaningful student involvement. Their professional programmers often lack the vital classroom sense that is the experienced teacher's. Though such programs may in fact be attractive and entertaining, it is highly doubtful that they facilitate learning to the extent claimed by some. (See Appendix A.)

This is not to say that there have not been some excellent programs where student involvement is nearly unlimited. Word processors, spread sheets, and paint programs, for example, allow lots of student involvement. However, students are left to teach themselves in a trial-and-error fashion. No direction or feedback is given beyond the basic rudiments of how to use the tools. This is fine for some students, but for the majority it is less than satisfactory. Once they learn the tools, what are they to do beyond making a few doodles or colorful mosaics?

Another trend has been to utilize a mishmash of text and visuals and to display them on a screen with little thought about whether such a mix is necessary or effective. Little thought is given as to how much the learner's mind can focus on at one time. In fact, little thought is given to the importance of focus or the relative merits of different kind of media, such as text, pictures, recordings or video. More is not necessarily better.

Textbooks, for example, are not out of date, and they will remain an important element in education. Even more important, proven textbooks have much to teach the computer courseware designer, because they contain a proven syllabus. Much of the material in a text may be supplemented and followed up by using a multimedia system which provides intensive practice for the student. Used in this way, multimedia systems and textbooks are part of a team.

What then can a multimedia computer do? A multimedia computer can provide an exciting mix: text, sound, visuals, and feedback. It can individualize. It can control the focus of an activity by a careful buildup. It can give the student practice at repeating activities again and again, very patiently, without the computer ever getting tired or angry. The artwork can be exceedingly good and the sound quality very high. In addition, student performance can be monitored and even fed back in to the lesson so that the pace of the lesson is altered to be more or less challenging to the student.

In this way, multimedia computer systems can and should make traditional methods even more effective. The challenge is to integrate the entire system, to recognize that each medium has its strengths and weaknesses, and to recognize the importance of sequencing and practice.

From this point of view, technologists are making a mistake when they ask for programs to be self-sufficient and teacher proof. Without intending to, their approach tends to dehumanize learning, perhaps because they fail to see the art in teaching and learning. Just as most educators have a poor understanding of the technology, most technologists have little appreciation of the complexities in the learning process. It is no wonder then that many excellent teachers feel threatened by CAI and its proponents.

The Difference between Education and Entertainment

Many advocates of new technology have not been careful to distinguish between the goals of education and entertainment. An example of this is the recent trend to make education effortless and fun, protecting the student from frustration. I think this is a dangerous trend. It does not reflect the real world, and does little to prepare the student for real life. Is learning easy and effortless? Why should we in education not try to develop the skills of thinking and concentration in our students? These are, after all, the key skills.

This does not mean that learning activities should not have an element of entertainment and fun to them. A lesson which is entertaining and useful is certainly preferable to one that is useful but not entertaining. However the lesson that is highly entertaining but of no use

must be recognized for what it is. In order to evaluate whether or not a program is useful it is essential that the educator identify just what it is that the student needs to learn through use of the materials. Is it a collection of random facts? Is it a process of thinking? Is it a problem-solving skill?

Of course it is nice if an educational activity is entertaining. Most people like to be entertained. However, watching a video where information is presented to a student in the form of an interesting movie can put the students into a passive mode. In the U.S. we say that our people now think in units of 30 second sound bites, like little commercials. As a result, some educational programs will bury a simple math problem, for example, in a detective video, so that the problem is broken into little bits and disguised as entertainment. The approach here is to help students solve the problem by putting it into a form they can handle without having to really concentrate. This misses the point that concentration itself is the skill that needs to be strengthened. It also wastes a lot of time. A problem that should be presented in less than 30 seconds, takes 15 minutes. Instead of working through 10 problems or more, a student works through just one problem. Students may think that they understand the final solution. But conceptual understanding is not enough. Solving math problems is a skill that requires practice, not just thought.

It is fashionable to think that learning is best when the students do not have to work hard. Entertainment and fun have become the key words. In fact, the word "problem" is seldom used except to indicate that there is a choice to be made, rather than a barrier to be overcome. Experienced teachers have learned, however, that it is only when students reach a barrier of sorts that a breakthrough takes place. Learning is not easy. Learning is hard work. Learning requires persistence. Good syllabus design allows the student to encounter a large number of appropriately sequenced barriers. And this is what an interactive computer courseware must provide.

At DynEd our first priority is to design programs that teach students how to learn: They learn by doing, by using the skill they are attempting to acquire, always in stages. Students need to learn the value of persistence, how to enjoy the challenge of facing each new barrier. Ideally, the difficulty of a task should match the ability and need of the student. This is where learning can be fun. But it does not have to be easy. It requires thought and practice, and this practice cannot be put into a textbook or delivered in a lecture. If so, it should not require a computer. Our goal is to provide students with the opportunity to challenge themselves within a controlled environment, with appropriate direction and feedback, and in a manner that justifies the use of a computer's power. We do not attempt to use a computer to do what can be done better in a book or in the classroom. We also do not try to take the place of a television.

Do not underestimate learners. Learners like a challenge. The key is to fit the challenge to the learner, not remove it. For this, the computer is a valuable tool.

The Importance of Sequencing

I believe it is in the area of syllabus design and sequencing of materials that multimedia computer systems can make a real difference. In language learning, repetition and practice is extremely important. But it is not enough. The material itself needs to be carefully structured. Otherwise the student will not make rapid progress and will become discouraged. For many language learners this has been the case.

One of the key ideas in language learning is that language input needs to be comprehensible if it is to be acquired. If you spend many years listening to English that is not comprehensible, you will not learn the language. It is essential that language input be sequenced so that it is comprehensible, and sequenced so that important elements of the language are internalized by the student over time.

One well known textbook writer, Robert O'Neill, makes the point that it is important to

decide whether sequencing of materials be "cyclical and accretionary, or linear and arbitrary." If the former, how will it appear to someone who sees just one lesson? Though the focus of a lesson may appear to be on one point, the greater value of the lesson may be in the recycling of previously introduced material.

Though learning is seldom a linear process, multimedia gurus trivialize the importance of sequencing and dismiss the utility of traditional textbooks. Exploration and browsing are useful when looking through an encyclopedia, but in language teaching the ordering of materials is a complex matter, more important than trying to make a program entertaining by loading in lots of special effects and car chase scenes which quickly become tedious and distracting.

In one approach, for example, language input must be sequenced so that it is comprehensible and so that structural elements of the language are internalized by the student over time. In this approach, grammar is approached more through inductive learning than through the overt learning of rules of grammar and usage. For this to work, a lesson will need to facilitate the student's seeing a pattern, for example by hearing several similar phrases in which a particular structure occurs and where that structure is central to the meaning of the communication. This can happen through the use of comprehension questions or through the use of listening tasks that help the student focus on the point in question.

An example here might be the contrast in meaning between the modals "will" and "may", as in "He will/may be there," or between a command and a request which result in different response behaviors which can be shown by video.

In lessons where the focus is more explicit, we may focus on the use of do to make a question: "Do you like music?" In subsequent lessons, this point will need to be recycled many times if it is to be acquired. Otherwise it will be forgotten, even if a student has studied it in a lesson and answered it correctly on a test. The important point is whether or not the student can use this knowledge as a skill in a real communication situation six months later.

Instead of designing lessons in a linear fashion, the successful designer will focus on several key points in one lesson and on different key points in the next lesson, but always recycling these points with the realization that nothing is learned in just one lesson. There is a spiraling progression, for example, from recognition, comprehension, conscious use, to spontaneous use. Some points will be focused on inductively; some points will be focused on explicitly. Such choices will reflect both the approach chosen by the author and the nature of the point in question, since some points of language can be described well by reference to a rule or explanation, and other points are best left to an inductive approach and constant exposure.

The real beauty and power of good courseware is apparent after many hours of use. As a result, the casual observer may not appreciate the effectiveness of well-designed materials. Courseware designed to be effective over a period of 200 or more hours can hardly be appreciated in a span of 10 minutes. Because of this, mistakes have been made by people who choose courseware because of its impressive appearance at a computer show. This error has also been made by hardware manufacturers who wish to show off their computers. The quiet, patient design of good courseware is quite different from games or flashy demonstrations. We are not aiming to sell computers. Our aim must be to serve the needs of education.

Strengths of the Computer and CAI

When deciding whether or not to use a computer for education, the question I always like to ask is what can the computer do that cannot be done in any other way? If I want the student to read text, it can be done with a book. If I want the student to listen to a recording of his voice, then it can be done with a tape recorder. If a movie is useful, then a TV is nice

or a video cassette can be used which can be made to stop and start. Using a computer to do these things is not really necessary. In fact, it can be distracting, and even harmful, for example when students spend lots of time focusing their eyes on the computer screen to read fine text which could just as easily have been put in a book.

Unfortunately, in the vast majority of programs currently available, there seems to be a very simplistic approach as to the choice of media mix and syllabus design, and little appreciation of the role which practice and repetition play in the acquisition of skills. And these points are precisely the areas where the computer can be of great service to education.

The computer, after all, is patient. It can work with the student, again and again, providing a large amount of practice and repetition. Skills such as language, math, and music are developed over a period of time, carefully recycled, always providing practice to the learner. Learning is not only the accumulation of knowledge. Learning also involves the development of skills through practice and problem solving. Language learning, for example, is similar to playing a musical instrument. Knowledge of the theory does not mean that you can play the music. Without constant practice, the theory remains quite useless.

An example here is the fact that many Japanese businesspeople have studied English for more than 1,000 hours, yet they are unable to communicate even the most basic ideas. This suggests that the proper role of good language courseware will be to provide the intensive practice with the language that has been missing in the classroom. In this way the computer can be a friend to both teacher and students alike.

If we look at programs such as the Suzuki method of teaching music, we see this very important point. These kinds of successful programs are well integrated. They involve effective, careful sequencing of materials, lots of listening, practice, repetition, constructive feedback, and human support. They are also based on the vast experience of working with many students. If the courseware designer does not have lots of experience with students, the program cannot succeed, regardless of the technology.

Interactivity is Necessary

In a recent issue of *Educational Marketer* (February 17, 1992) there was an interesting report on comments made by Peter Kelman, vice president of Scholastic Inc., to attendees at the Winter Microtrends '92 conference in Washington, D.C.:

> The problem with most interactive products designed for schools is the lack of imagination that has gone into developing them. Instead of taking full advantage of the computer's intelligent capabilities, the programs become mere electronic versions of the original media.... ...Even Animal Pathfinders, Scholastic's own product, is "basically a bunch of file cards." Almost no interactive videodiscs are interactive, Kelman said, adding that "they just move from frame to frame." (Scholastic Sees Low Return From High Multimedia Investment. *Educational Marketer*, Feb. 17, 1992, pg.1)

When I use the word "interactivity", I mean more than making an occasional choice. Interactive programs should be more than electronic page turners which turn the page or go on to the next sentence when a student clicks on a mouse. I remember a program I saw a year ago which called itself interactive. It used video. However, simple things like being able to repeat a sentence, going back to the previous scene, skipping ahead (all these basic functions) were not possible. Students' interactivity was severely limited. In fact, there were only occasional points within the program where the student could do anything at all except listen and watch. It is just this kind of program, which calls itself interactive, that sets a bad example and leads to frustration for both educators and students.

In DynEd's programs we insist that the user is always in control. Once a lesson is loaded, the student can interrupt at any time, even in midsentence. The program empowers students to interact with the material in several ways:

a. to hear a sentence again;
b. to hear a translation or hint;
c. to fast reverse/forward to the previous/ next question or task;
d. to display text;
e. to see a Glossary entry for selected words in the text;
f. to adjust the pace;
g. to adjust the level or depth of the lesson.

In addition, the program interacts with the student by providing listening tasks that require a physical action by the student such as clicking on an icon or text to indicate the answer to a comprehension question or to indicate which direction in the program the student wishes to go. In some lessons, students can even generate questions or work through a simulation by clicking on sequences of icons.

Used with this kind of interactivity, the program encourages students to go through the lessons many times, each time with a different path, because the program is able to intelligently respond to the student's input at anytime during the lesson, not just at a few predetermined points. Though the programing is more difficult, we believe that the result justifies the use of the computer, because what the program does cannot be done in any other way, and because the pedagogical principles are sound.

For this kind of interactivity to work, the response time needs to be quick. If the delay between student input and courseware response is too great, the student becomes impatient and frustrated. That is why we design DynEd programs to choreograph the lesson and retrieve most of the graphics from the dynamic computer memory (RAM) rather than from the CD or hard disk, which is slower. Ideally, the hardware should become invisible. The interaction should seem natural. Real time response is the key.

At DynEd, our patented approach to this problem has resulted in a proprietary authoring system that allows both the author and the student to control and mix data and media in real time from input devices such as a CD-ROM.

On this point it is important to examine new technologies very carefully. Though there is much talk of CD-ROM, CDI (Compact Disc Interactive), DVI (Digital Video Interactive) and other new technologies, it is important to insist that simple forms of interactivity be possible, regardless of the format. For example, if the video is compressed so much that only the change from one frame to another is in the computer memory, it may not be possible to back up a few frames, which is a basic requirement for some types of courseware. This means that the level of interactivity for these new technologies may be disappointing. Students may be able to interact only at a few points within the program. Please remember that students do not care what technology is being used. They are more concerned about the level of interactivity. It is therefore more important to be able to do the basic operations well and quickly, rather than to be able to do a special effect that is seldom used.

In DynEd's courseware, combinations of video, audio, and graphics are created in real time. In this way, the courseware is truly interactive. At all times, the computer memory orchestrates the combinations, but does not attempt to preload audio and video sequences. Rather, we take advantage of the quick seek times now available for CD-ROM and other devices to access and play audio and video segments. As a result, we have more economy and flexibility, and this results in a greater depth of interactivity.

What are the Advantages of Using Multimedia in Education?

Multimedia allows the medium to fit the message. Designers are no longer restricted to the concept of a page. Designers who wish to focus the learner on a visual illustration, for example, can have the learner study changes in the illustration while listening to a spoken explanation rather than read the accompany-

ing text on the screen. Eyes cannot focus on a text and a changing illustration at the same time. In this way, the designer can better control the manner and sequence of presentation and practice in a lesson.

Recent studies suggest that the combination of sight and sound are very powerful. Information or tasks presented with visuals only, or with sound only, are not nearly as effective as when both visuals and sound are used together. Long term retention of information can be increased, leading to more efficient learning.

Another important advantage of multimedia is that the designer can vary the mix of media to provide variety of input. This can keep the learner involved in the lesson. For example, sometimes input can be in the form of a simple graphic, sometimes it can use full motion video, and sometimes a mix can be used, with or without sound. Sometimes an animation, with line drawings, is a more powerful teaching tool than beautiful, full color, realistic photographs. We have found, for example, that simple graphics can stimulate more creative thinking and a sense of playfulness than when there is too much realism and detail which can overload the senses.

It is important not to be seduced by capabilities of multimedia. For example, the use of full motion video should be considered carefully. Sometimes it is useful and necessary. For example, to teach cross cultural communication it is valuable to show real situations where we see how people behave. The ability to see gestures and facial expressions may justify the increased cost of the courseware. In other instances, however, motion video can be distracting and can overload the learner with needless details. Still pictures and simple graphics may be the better choice.

What about Hardware?

When purchasing hardware, beware of the computer neophyte who "loves" a particular type of machine or computer. Whether or not a particular type of hardware is good or not is insufficient reason for making a large purchase. In choosing between MS-DOS type computers and the MAC, for example, the following questions should be addressed:

1. What are their comparative shares of the market?
2. What new courseware titles are being developed for each?
3. What is their long term commitment to the market?
4. What new standards, if any, are gaining momentum?

In this regard it is important to remember what happened to the Beta VCR which lost out to the VHS. Without a careful analysis from this point of view, a school might end up with lots of machines but a dwindling choice of new courseware titles. After all, since multimedia titles are expensive and difficult to develop it is unlikely that developers will bring out a large number of titles for a particular kind of computer unless the installed base is large enough to justify the investment. From this point of view, MS-DOS types of computers (i.e., 286, and 386 cpu) represent the dominant trend at this time:

> The installed base of Macintosh computers is less than the number of machines which now run Windows. To many developers the potential for growth in multimedia is on the PC. For example, 88 percent to 90 percent of the CD-ROM titles shipped are for MS-DOS. While Apple may be very effective in getting developers to use the platform for authoring, it is the PC market which will create growth and profits. (Latta, J., "Big Time For Quick Time." *MULTIMEDIA & VIDEODISC MONITOR*, February 1992, pg. 21).

Hardware companies that have their own, proprietary type of system, such as Apple, must work hard to overcome this disadvantage, and even then they may not be able to compete in the long term. The trend now is to meet worldwide standards that allow the same courseware to run on different types of computers. Despite the criticisms of DOS and Windows by some, these kinds of dominant

operating systems are the most important factors in computing today. The new MPC (Multimedia Personal Computer) standard is of particular importance to educators because it extends the minimum standard personal computer configuration to include a CD device and other multimedia necessities such as enough memory, a color VGA monitor, etc. A hardware system that supports one of these major standards gives a certain amount of assurance to the buyer that there will be an ample choice of titles being developed.

At present the personal computer with built-in CD-ROM and Floppy Disk drive, together with the option to add a video card and video disk player, provides the best system with the most flexibility for education. Though other systems will be cheap and CD-only based, I believe they will be limited to entertainment and games, at least for the near future.

It is also important to confront the fact that making multimedia courseware is not just a matter of programming. Unlike the PC, where users can make their own simple programs, multimedia systems require much more sophistication and investment. Unless teachers have lots of time, and a large budget for production and testing, they should not be expected to design multimedia courseware to support a school's investment in hardware.

What about the Future?

I believe that multimedia CAI has the potential to bring about a revolution in education. Education can be made available to more people. Teachers can be used more effectively. In fact, teachers will benefit. The person-to-person interaction is most powerful in smaller groups. Rather than have teachers stand in front of a class of twenty or more students, classes can be redefined and divided into smaller, more manageable groups. Activities which require the face-to-face interaction with a teacher will be balanced by other activities where students can work individually or in small groups with an MPC.

Students will work together, yet the courseware will respond and adjust to the individual, providing problems and feedback which optimizes the student's involvement with the courseware. Students will use the computer to practice a variety of skills with the aim of acquiring those skills in stages until the target level is achieved. Using the computer in this way will free the teacher for activities where the teacher's face-to-face input is more effectively used.

This more effective use of teachers may even result in higher salaries for teachers, higher quality teachers, and better role models for our students. The whole system becomes more human, not less human. Using teachers as drill masters in front of a large class is hardly personal.

Another benefit of course will be in the home. Much of what has to be done outside the home now can be done inside the home, especially those activities that require intensive practice and follow-up. This is the great strength of the computer. It provides intelligent interactivity, and it is in this way that it will distinguish itself from games and passive entertainment. Just as learning the violin requires daily practice at home, learning activities are optimized when students have the opportunity to effectively practice as often as possible.

In this short overview I have tried to show some of the advantages and dangers of the new technology. Education is too important to be approached as just another new product. Through a partnership of technology, teachers, and students, we can all benefit, and, through better education, build a better world.

Appendix A

The optimistic claims made by some are generally based on small samples, and the testing procedures themselves are often questionable. With that as a disclaimer, here are some claims that are now being made:

Research Highlights

Interactive Videodisc—Vs—Live Instruction	
Learning Gains	56% Greater
Consistency Of Learning	50-60% Better
Delivery Variance	20-40% Less
Training Compression	38-70% Faster
Learning Curve	60% Faster
Content Retention	25-50% Higher

Sources: U.S. Army; IBM; Zerox; United Technologies; WICAT; Federal Express (Adams, G. "Why Interactive?" *Multimedia & Videodisc Monitor*, March 1992, pg. 20)

Appendix B

Eight basic evaluation questions for teachers to ask:

1. What does the courseware do that cannot be done another way? Does the benefit justify the cost?
2. Is the content thought through? Is it important for my students to spend their time with this content?
3. Is it designed for accumulating facts or building a skill? If a skill, does it provide opportunities for ample practice?
4. Does it allow me to use class time more effectively?
5. Are there others using these materials with whom I can share ideas and problems?
6. Does it keep useful student study records that I can access?
7. Is there enough courseware available? One course by itself will probably not be enough.
8. Is the hardware upgradable? Will it be useful five years from now?

Application of Speech-Recognition Technology to Language Instruction

Dimitry Rtischev
SRI International

Introduction

A major deficit of existing Computer-Assisted Language-Learning (CALL) systems is their focus on the receptive language skills of reading and listening, and their relative neglect of the productive skills of writing and speaking. This imbalance is not a coincidence; it is far easier to program a computer to display text and graphics and play sound recordings to the student than it is to program understanding and evaluation of spoken and textual input from the student. Hence, most current CALL systems relegate the student to the passive role of observing and listening with occasional interactions via the keyboard, touch-screen, or mouse. Such limitations are especially unfortunate considering the importance attached to developing spoken skills by today's educators and students alike.

Even though significant progress has been made in automatic speech recognition research, unconstrained dialogue between man and computer is limited to science fiction, and will remain so for the foreseeable future. Practicing speaking a foreign language with a fluent conversation partner is thus the only reliable way to achieve fluency. The role of the computer in language instruction is that of an ever-patient, individualized tool augmenting and facilitating the learning process. Adding automatic speech recognition capabilities to CALL applications—even though those capabilities are constrained—promises to enhance that role greatly by enabling the computer to offer spoken practice with evaluation.

Dimitry Rtischev holds a Master's and a Bachelor's degree in Electrical Engineering and Computer Science from Massachusetts Institute of Technology. Mr. Rtischev has an interest in helping overcome linguistic and cultural barriers between nations and has been focusing on the intersection of automatic speech recognition and computer-assisted language learning for the last four years. At present, he is with the Speech Research and Technology Program at SRI International, a worldwide contract research and consulting organization based in Menlo Park, CA.

Speech Recognition Technology—An Overview

The goal of automatic speech recognition is to enable computers to transcribe utterances automatically. Speech recognition has been an active area of research for several decades. It draws upon a variety of disciplines including computer science, electrical engineering, linguistics, acoustics, and statistics. The basis for modern speech-recognition technology is the development of statistical models of spoken language using large amounts of recorded and transcribed speech. The statistical models describe attributes of spoken language such as word acoustics and word juxtaposition in terms of a set of parameters. The development process, called *training*, consists of estimating the value of those parameters on the basis of speech recorded from human subjects. During training, the computer uses recorded speech and the corresponding typed transcription to compute an association (mapping) between the acoustic and textual representation of words. Once this mapping has been computed, it can be used to recognize new utterances.

Speech-recognition systems can be broadly classified into speaker-dependent and speaker-independent systems. Speaker-dependent systems require user enrollment: Every new user reads a specific script and the system trains itself on that user's voice. Speaker-independent systems, on the other hand, are trained beforehand on a wide variety of speakers and do not require any enrollment training for a new user. Speaker-adaptive systems lie between these two extremes, requiring little if any enrollment. Instead, they rely on performing continual training, or adaptation, as they are being used. Although recent advances have been closing the gap, speaker-dependent systems tend to perform more accurately than speaker-adaptive or speaker-independent systems.

Speech recognition systems are also divided according to the restrictions they impose on users' speech. Isolated-word systems require users to insert unnatural pauses after every word. Continuous-speech systems permit natural utterances, but tend to make more errors and use more computational resources. Continuous speech poses greater problems to the computer as a result of coarticulation effects: Consecutively spoken words blend one into another, even though the human ear hears them as distinct.

Automatic systems that recognize continuous speech independent of who is speaking are clearly desirable for most applications. The question is, given today's level of technology, can such systems recognize speech accurately, especially for foreign-language students with strongly nonnative qualities of speech? The answer is *yes*, provided sufficient constraint is placed on what the users are allowed to say. The more confined the domain of acceptable user utterances in terms of allowed vocabulary and phrasings, the greater the accuracy of speech recognition. For instance, recognizing open-ended dictation (the futuristic voice typewriter) exhibits far higher error rates than does recognizing questions asked in the context of airplane travel using only specific words and sentence constructions.

Another important question is whether some languages are more difficult to recognize automatically than others. Experiments in automatic speech recognition have not been broad enough to answer this question definitively, although most multilingual implementations tried to date show relatively little language sensitivity. Because modern speech recognition techniques are rooted primarily in statistical pattern matching, rather than in the intrinsic properties of the various spoken languages, it is just as straightforward to train a system to accurately recognize English spoken with a strong German accent, for instance, as it is to train one to recognize native American English or native German. The algorithms stay the same for most languages and dialects. As long as the body of speech the system has been trained on (the training speech corpus) represents the variability in the speech of the intended user population, the training process produces parameter estimates appropriate for recognizing that user population. Problems may arise, however, when different nonnative subpopulations (e.g., both Germans and Japanese learning English) are grouped into a single training speech corpus. In such cases, the vari-

ability would probably be too great to be adequately represented by a single set of speech models and recognition accuracy would be poor.

Applying Automatic Speech Recognition to Language Teaching

Unlike most of the conceivable applications of automatic speech recognition, CALL applications retain a high degree of utility even when the universe of acceptable input utterances is confined. Although a general-purpose voice-typewriter would lose much of its value if users were required to dictate only within specific narrow contexts using only certain phrasings, a CALL system based on automatic speech recognition can be quite valuable even with such limitations. Ironically, it is imposing the limitations that allows overcoming the complications added by student accents and disfluencies and makes it possible to build CALL applications with high recognition accuracies and significant user benefits. Careful design of the user-machine interface and careful scripting of the lessons to be used are at the heart of minimizing the limitations imposed by constrained speech and ensuring that students truly benefit from the ability to interact with the computer by listening and talking in the target language.

Interaction can take the form of drills with feedback, comprehension exercises, exercises to build communicative skills, and evaluation.

Drills with feedback

Drills structured to evoke a small, enumerable set of distinct responses can work well with today's automatic speech-recognition technology. One possibility is creating completion or cloze drills in which the student is expected to *say* the completions. The computer can be programmed to recognize the correct as well as the most probable incorrect responses, and can control lesson progress accordingly. As long as the set of anticipated responses consists of acoustically distinct multisyllable utterances, highly accurate recognition can be achieved even for severe accents.

A second possible drill paradigm is grammatical transform exercises in which a student hears and/or reads a sentence and then *says* a specific grammatical transform of that sentence. For instance, as part of practicing English constructions using the past perfect tense, the student hears and/or reads "I go to school" and says "I have gone to school." In addition to anticipating the correct response and acknowledging when the student produces it, the computer can also be programmed to anticipate several probable incorrect responses (e.g., "I have went to school") and provide an appropriate explanation if the student produces one. Again, the acoustic variation among anticipated responses is very important for achieving accent-tolerant, accurate recognition. Hence, it would not be wise to design a transform exercise to differentiate between close-sounding phrases such as "I study at school" and "I studied at school."

Comprehension exercises

Automated speech-recognition technology can be used to help develop language comprehension skills. A straightforward example is a system that presents a topic using a combination of target-language speech, text, and graphics, and then asks the student to answer related multiple-choice questions by speaking (Bernstein & Rtischev, 1991). A system of this nature requires the student to understand presented information, understand the question being asked, determine which of the available answers is correct, and finally read the correct answer aloud. Figure 1 shows one of four topics that have been implemented for two target languages (English and Spanish). The multiple-choice answers have been intentionally scripted to be relatively long and distinct-sounding phrases. Although precise results are not available, extensive informal experimentation with nonnative speakers of varying ability and from many parts of the world confirmed that the system exhibits very high recognition accuracy.

Another method for building comprehension skills employing speech recognition uses the paradigm of the interactive computer novel. The computer presents a story in target language using a combination of text, graphics, and prerecorded native speakers. At frequent

junctures in the story, the student is provided with a set of alternatives that determine the evolution of the story. The student *says* the sentence indicating the desired plot development. Active involvement in determining the progress of the story retains the student's interest and attention. Furthermore, the student can interact with the same story several times, exploring a different outcome each time. As before, the alternative sentences provided to the student for reading aloud should be designed to sound distinct.

Building communicative skills

Goal-directed student-computer conversation, in which the student aims to achieve a certain objective by speaking and listening in the target language is an example of how a CALL system based on automatic speech recognition can foster communicative competence. A prototype system has been demonstrated that enables EFL students to check into a hotel by speaking and listening to a hotel clerk simulated by a computer capable of speech synthesis and recognition (Hirayama, 1991). Although it has not been made clear how accurate or flexible that particular system is, current technology is capable of guiding students through a variety of simulated goal-directed activities such as making airplane reservations or renting an automobile.

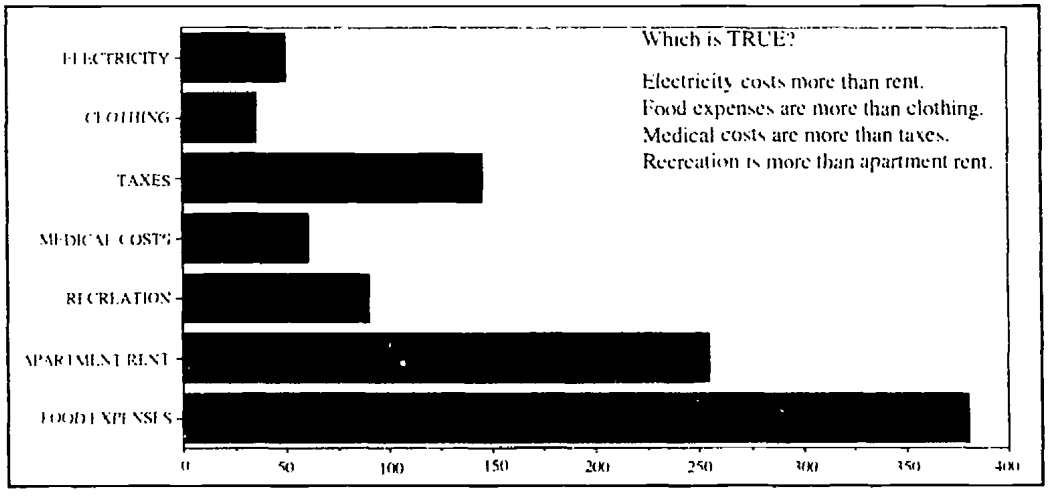
Regardless of the type of activity being simulated, careful scripting is again fundamental, since the student-computer interaction must be structured to reduce the extent of acceptable student responses to a limited number of acoustically distinct utterances at each point in the program. Although it obviously introduces serious disadvantages, such structuring is necessary to achieve accent-tolerant and accurate recognition. Much design and experimentation needs to be done to study to what extent constraints on student input can be disguised and the qualities of real conversation retained.

Evaluation of student progress

Automatic speech recognition technology can be used in various ways to evaluate progress in learning a foreign language. One possible method of evaluation is to have the computer keep track of latency, speech rate, and disfluencies in student responses to any of the above exercises. Students who are more fluent take less time to prepare a response, speak it with a more constant speech rate, and exhibit fewer disfluencies such as hesitations and self-corrections. In order to have a score be valid, however, it is important for the program to accumulate averages of latency, speech rate variation, and disfluency counts over at least a dozen utterances and disregard rare anomalies (even a native speaker can stumble on occasion). Only such composite scores can be expected to carry reliable information about the student's progress.

Automatic speech-recognition technology

Figure 1



can also evaluate progress by judging pronunciation quality. Studies involving speech recorded from Japanese adults learning English have shown that automatic speech recognition can indeed be used to compute pronunciation scores, and that those scores correlate closely with judgments made independently by a group of human experts listening to the same recordings (Bernstein et al., 1990). Again, the reliability of automatic scores increases with the amount of speech produced by the student.

Hardware Considerations

Difficulties in devising accurate speech-recognition algorithms are not the only obstacle to widespread acceptance of automated speech-recognition. Currently-achievable recognition accuracies make many domain-specific speech-recognition applications feasible, including CALL applications. However, most of the personal-computer platforms now available are inadequate for supporting the computational, memory, and input/output requirements of speech-interactive applications. Adding such applications to personal computers (PCs) today necessitates buying costly peripheral equipment, including signal-processing boards, analog/digital and digital/analog conversion boards, microphones, amplifiers, speakers, CD-ROM players, and extra memory cards. These peripherals can double the price of the overall hardware configuration, often pushing it above $5,000. Hardware cost, complexity, model changes, and lack of standards thus hinder the penetration of speech-interactive applications.

In the past few years, however, much planning and discussion of multimedia personal computers has taken place, and a few have already been introduced. This new generation of microcomputers is designed to support not only the text and static graphics supported by older PCs, but also audio and video input and output. Most multimedia PCs will come equipped with a CD-ROM player capable of storing large amounts of digitized speech, several megabytes of memory, and enhanced computational capabilities, as well as analog/digital and digital/analog converters for connection to built-in or external microphones and speakers. The emergence and penetration of multimedia PCs during the 1990s will revolutionize the PC hardware landscape and bring speech-interactive CALL applications into the mainstream.

Conclusion

It is unrealistic to expect that speech recognition technology will suddenly revolutionize the teaching of foreign languages by completely automating conversational practice, which to this day requires one-on-one teacher-student interaction. Instead, the integration of the latest technology advances into new and existing computer-assisted language learning paradigms will take place gradually over the 1990s. As educators realize the potential benefits of the technology and come to understand its strengths and weaknesses, they will rely on their experience and creativity in designing a new generation of speech-interactive CALL applications. The expected availability of affordable multimedia PCs should help popularize the new applications among language teachers and students worldwide.

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A Glimpse of the Virtual Future

Macey B. Taylor
University of Arizona

Computer Assisted Language Learning (CALL) has a multitude of definitions and implementations, perhaps as many as there are practitioners, each teacher having his or her own individual views and expectations. However, no matter what the particular orientation, preferred methodological approach, or type of activity, almost all teachers agree on the desirability of active involvement on the part of the learner. From drill to practice to production of authentic language in real or simulated environments, a common goal is engagement of the learner.

Language program designers and authors constantly seek new and better ways of building in learner participation, and teachers use a variety of software not intended for language learning because they have been able to design useful language learning activities around such programs. In some of these, such as desktop publishing packages used to produce student newspapers, simulations, and adventure games, much of the activity takes place away from the computer as participants discuss strategies before playing and write reports afterward. Another example is business software such as spreadsheets and graphics programs, which are often used to manipulate and display data which must then be presented in an oral report.

One obvious way to involve learners is to allow them to control the activity by having them make decisions affecting its progress. In the typical language learning software program, this feature is manifested in such choices as going forward/backward to the next/previous page or question, selecting one of several options listed, or jumping around via author-provided paths (links) in a hypertext/hypermedia program.

Another way of allowing learners to have more control is actually to involve them in the design and production of an activity. Advocates of communicative classrooms have been particularly interested in using technology (computers and video equipment) as a learner tool in the making of a product which may or may not have language learning uses in its finished form but whose making requires considerable use of language.

What has gone before

Interest in improving ways of providing learner engagement and control has existed since the beginning of CALL. Many linguists and language teachers with some knowledge of programming have devised variations of Winograd's *SHRDLU* (1972), an artificial world in which objects of different shapes and colors are displayed on the screen and manipulated through typed-in commands, for example: Put the blue cube on top of the red cube. However, these worlds are inherently limited for CALL purposes, both in situational content and in opportunities for linguistic practice.

John Higgins's *John and Mary/Grammarland* programs (1984) offer a more sophisticated and language-oriented next step to simple manipulation. In these miniature discourse universes, the student can not only manipulate objects and get mechanical feedback, but can interact with the computer's knowledge base verbally via the keyboard. Students can move John and Mary around and ask the computer questions about their whereabouts or other aspects of the visible situation. They can have the computer pose similar questions to them; the computer then agrees or disagrees with the answers according to the true situation at the time. Alternatively, students can just keep pressing the ENTER key to

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Macey B. Taylor is currently ESL Course Director at University of Arizona. She was faculty member of the 1991 (Barcelona) and 1992 (Bratislava) TESOL Summer Institutes, and has written numerous articles on the subjects of CALL, EAP/ESP, communicative methodologies, and materials development. She is editor of the TESOL CALL Interest Section newsletter, consultant, teacher trainer, and CALL software developer.

observe the computer asking itself questions and giving true answers. Learner control over manipulation of possible events in this microworld is total. Unfortunately, these interesting seeds have not been developed commercially or exploited further.

Earlier, in 1978-79, as a result of Pentagon interest in experimental mapping by computer as a tool in military operations, a research group at MIT developed *The Aspen Movie Map*, a fantastic (and fantastically expensive) exploration of the possibilities of videodisc, which demonstrated remarkable user control. It was possible to "drive" through the whole town of Aspen, Colorado, to have a conversation with the chauffeur, to take any street or turn, to examine buildings in different seasons, to enter buildings and do such things as read menus in restaurants or explore the history of the building. (Brand, 1988) Unfortunately, this type of development has not produced products available to education, and despite the obvious utility of such a package, it has been technologically and financially beyond the means of CALL institutions to produce on their own. At present, all the interactive videodisc packages known to me offer a very limited set of author-provided options at any decision point. They are very obviously authored, they cannot be tinkered with by a teacher, and they serve primarily as Stimulus programs, that is to say, as prompts for authentic communication among the learners in a group as they attempt to solve the problem(s) posed in the scenario.

The foregoing should not be interpreted as criticism. There are many useful and interesting possibilities to be derived from creative exploitation of these and other packages, both full-fledged commercial ones and smaller working models or demonstration materials. I have several times enlisted programmer help to try to fiddle around with the *Grammarland* ideas to produce something I could use in the classroom, and many people have accomplished finished products of considerable utility by repurposing laser discs with the aid of authoring software (e.g., Sparks's (1989) arcade game-based spelling lessons in which the learner has to spell a word correctly, instead of conquering the original obstacle, in order to continue to the next crisis). Since CALL is a highly materials-consuming and underfinanced area of education, we need to find new uses for programs developed by more well-endowed departments. Most of us are convinced that interaction and multimedia are key concepts in our quest to provide effective and efficient learning activities, but we have just begun to tap this supply of useful material.

Virtual Reality

Recently, virtual reality has reached a stage of development and commercial implementation that is both useful and affordable, but little known in the language learning world. Simply put, virtual reality is a simulation the user can interact with and affect, in real time. The user can actually get into the simulated world, and move things around, or even change position in order to view this world from different perspectives. In adition, the world may be programed to react to spoken, as well as physical, input. A virtual world differs significantly from Higgins's microworlds in that a student can actually become part of the virtual world, not just an external controller of events within it. Instead of typing in a command to move a box from the floor to the table-top, students can reach in and move the box themselves.

While development of virtual reality systems has long been in process, all early efforts required that the single user be encased in a multimillion-dollar simulator (such as the military use for flight training) or at least wear some sort of apparatus on the head and/or hand, attached to a supercomputer that could handle the massive memory demands that the realistic animations and renderings of alternative views required; only that person could actually see the effects of his or her actions. (Videotapes made of these experiences depend on mounting small cameras in the apparatus.) Besides the cost of these complicated systems, a system accessible to only one user at a time, with no logistically or financially feasible possibility of group viewing and interac-

tion, would be of scant utility in the classroom.

Recently, however, many of the necessary hardware and software solutions fell into place as the world of performing arts (music and video) became involved with and intrigued by the possibilities of multimedia performances. When developers saw a market, affordable products began to appear (Grantham, 1987). It is now possible to have a virtual reality system for multiple users, with watchers who are interacting with each other and with the students in the simulation, in the ordinary classroom for as little as $1000 (but as much as $15,000 or more, depending on what one already has and what one wants to do with the system).

With affordable and usable equipment have come educational applications. The Orlando Multimedia '92 (Tenth Conference on Interactive Instruction Delivery) advance program contains several mentions of virtual reality and two presentations devoted to it. One of these abstracts concludes: Future patterns in the development of virtual reality applications will be discussed with emphasis on the transition from multimedia to virtual reality. (Rossini, Dede, & O'Bannon, 1992)

It is somewhat staggering to contemplate a need for or the imminence of "the transition from multimedia to virtual reality" when we have hardly begun to tap the possibilities of multimedia, yet we should not ignore any technological development of promise which is also affordable. CALL practitioners and planners need to be informed about what is out there about to blossom so that they can make good decisions for their programs and institutions in such areas as hardware acquisitions and teacher education. Decision-makers need to consider each new technological development in terms of what it could do for their learners if they were able to implement it and what they would need to do in the way of purchases and training if they decided to implement it—the age-old question of cost effectiveness, with time generally being a major cost to be considered in CALL activities.

What can you do with a virtual reality set-up? The most basic, bare-bones system offers the ability to put the figures of one or more students (three seems an upper limit because of the size of the monitor screen—not many of us can afford a video wall) into an environment with which they can interact while the whole class watches, perhaps giving directions or other oral input. Examples of interactions I have seen (with the environments provided by the company which produces the most well-known system, *Mandala*) are catching the right letters from a "shower" of letters to spell the word spoken by the computer, playing a harp, and batting a ball from one player to another.

Teachers (and students) can design whatever environments they wish. Phinney (1991) suggests a series of environments for students to walk through and act upon commands they hear. The possible scenarios are nearly endless. Students could go shopping in a grocery or drug store, or in a department store for Christmas gifts to take back to the family in Xoxoland. They could go to a restaurant, order from the menu, and receive their food. They might rearrange books in a bookcase according to a system, or take a trip to the zoo or a topical museum. They could practice chemistry experiments with no risk of real explosions, or learn math or adjective clauses by making numbers and symbols or words into manipulatable objects. What kinds of things do you do with lots of props, or not do because they require so many or impossible props? These seem "naturals" for even simple, one-screen environments. Once the backgrounds and props are created and stored on disk, they are ready for use at any time. It seems clear that this is an idea for which uses would come in large numbers once one explored the equipment possibilities.

More important than "what" is why. In my mind, virtual reality has several important features. First, the bare-bones system possibilities are exploitable by any teacher and group; no technological expertise is needed. If anybody around can draw it or you have an "it" to digitize, you can have it in your environment. (My attempts to go further with Higgins' microworlds have bogged down in the prob-

lems of natural language parsing.) Second, students can create virtual worlds of interest to them, which can then be used with subsequent groups. Even little children can draw well enough to create worlds for their own use. Since nothing (but electricity to run the equipment) is consumed in the process of creation or use, there are no limits on the number of virtual worlds a class or school can have, no problems with running out of supplies at the end of the budget year! Third, at least eventually, anything one can do with interactive multimedia can become part of a virtual reality, either in combination or by turning the multimedia production into a virtual world, giving it the benefits of actual learner involvement in and control of the action. Fourth, the benefits of TPR (Total Physical Response) are extended far beyond the typical classroom activities into a much wider range of lexis and structures and combined with the impact of visuals and, if appropriate, sound. We ignore such impacts at our own risk, for our students are becoming ever more accustomed to and insistent on multisensory learning experiences.

On the practical side, like desktop publishing and desktop video, this is a real world application. As with DTP and DTV, not all students will make use of such an application in their future work, but the fact that people do provides an additional motivational factor for using the target language well enough to create a virtual world. Furthermore, who knows which or how many students will actually find a use for the technical skills acquired in their projects? In a current argument at my university, an advocate of the proposed computer acquisition fee pointed out that a local high school had one computer for every nine students in contrast to the university's one for every 200 students (machines which are far from being state-of-the-art in many cases). The point of the comparison is that the high schools are paying more attention to the role of computers in students' futures than the university does.

Hardware

The basic hardware requirements are an appropriate computer, a real-time video digitizer, and a video camera, all connected to each other and controlled by appropriate software. To create environments, one needs a paint program. The same digitizer and camera can be used to import art work and images of real environments into the paint program, and sound can be added from an audio digitizer or whatever other sources may be available (MIDI, CD, etc.). Adding a genlock makes possible the use of videodisc imagery and changes the figures (like shadows or outlines) of the human participants to recognizable color images.

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Look Who's Talking: A Computer-Assisted System for Discourse Analysis

Karen Price
Harvard University

One component of language classes involves students practicing conversation to improve their ability to converse in situations outside of class. Issues arise, however, when students do not participate equally. If a student never manages to break into the conversation, that student is not getting the same amount of language practice as other students. If verbal student participation is related to improving oral proficiency, students who do not participate well may not be acquiring the skills necessary to learn better conversational skills.

The handling of student participation in the language classroom can also affect a student's perception of the instructor as well as the student's perception of his or her own progress. Research findings (Price, 1991) indicate that when students are asked to rate their own participation in class subjectively (without having had the benefit of quantitative measurements), those who respond that they have not participated well tend to hold the instructor responsible for their lack of participation. Moreover, students who feel they have not participated well rate the instructor lower on other end-of-term evaluation items such as, "Rate the instructor overall." In addition, these students are likely to report that they have made far less progress than other students. A heightened awareness of patterns of classroom discourse may help instructors and students contend with some of these issues.

Up to now, those of us interested in classroom discourse have made audio or videotapes of the class in order to transcribe subsequently and code who spoke and for how long. In an animated classroom, when speakers interrupt each other frequently and often overlap, it is difficult to be accurate. Moreover, the extremely tedious coding may require several hours for short classroom segments. Before long, the researcher tires and budgets are quickly depleted.

The objective of this project, therefore, was to develop a system to automate much of the tedious work involved in coding and analyzing classroom discourse. Such a system is far more precise than a human coder who manually notes the start and stop times of speakers. In addition, such a system provides the user with menu-driven software to query the data immediately after it is collected. The user is able to ask questions about the number and length of utterances made during the class session by an individual student, members of a given cultural group, age group, or gender. Although the system itself does not, of course, distinguish between questions and other types of utterances, it helps us identify regular patterns in teacher/student sequences which may prove fruitful to explore on the corresponding videotaped class session.

The system under development[1] uses existing MIDI[2] software and original software to produce data displays and data listings which cue to the videotaped class session, enabling the researcher to locate and refer to corresponding moments of the class. It is:

- Menu-driven to facilitate use by instructors; students, and researchers;
- Comprised of off-the-shelf hardware;
- Non-disruptive to speakers in the classroom;
- Able to run in real time;
- Accurate to 1/100th of a second;
- Inexpensive (less than $2000).

Once we collect data from the classroom with this system, we can display it in a variety

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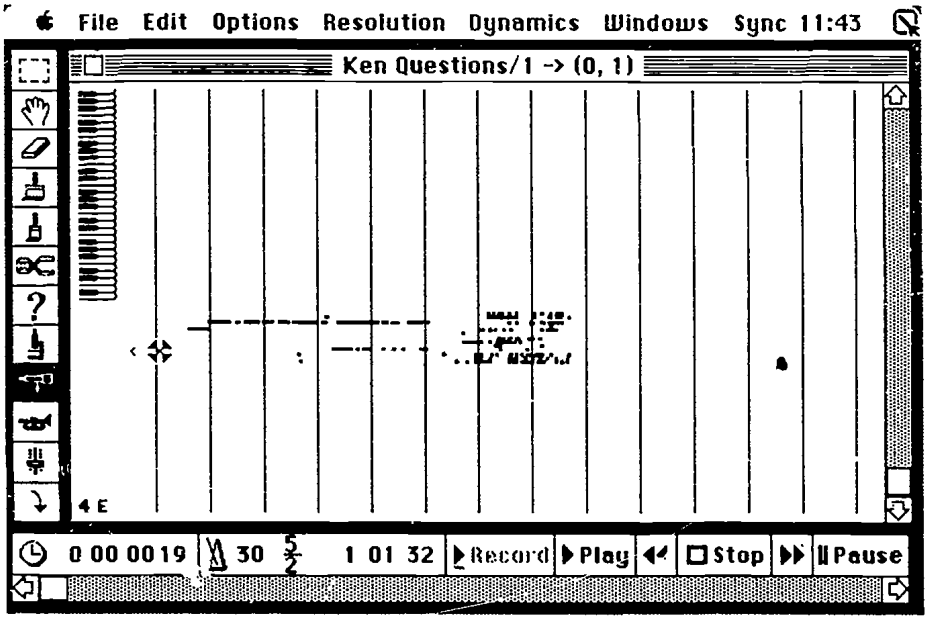
Karen Price is Associate Director of Harvard University's Programs of English as a Second Language.

Figure 1: Display of speech events of students in an ESL class



of ways. (Figure 1) Translating the voice events into a visual display gives us a quick overview of the temporal patterns of the classroom discourse. Each horizontal line represents the contributions of one student. The gaps between the lines denote the silences. Parallel lines indicate speaker overlap.

For a more detailed view, we can look at shorter segments of the data. (Figure 2) Darker lines indicate louder voices and the lighter lines represent more soft-spoken utterances. Individual students can be identified by pointing to individual lines of the display. (Figure 3) The notation "9" at the left indicates that the line to which the user is pointing represents student 9.

Figure 2: Close-up revealing relative volume and interrupt/overlap patterns

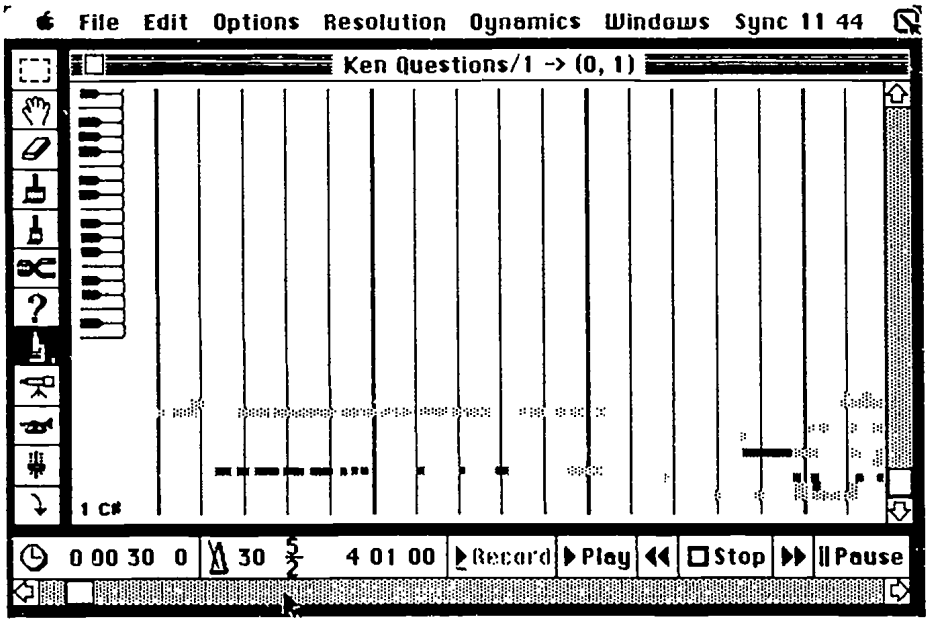
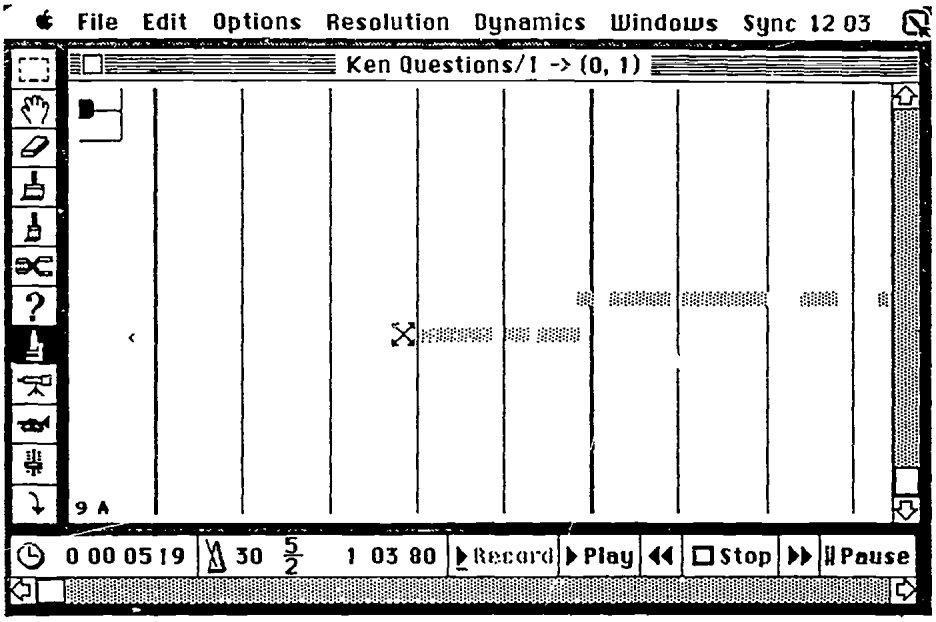


Figure 3: Further close-up with cursor on start of utterance by speaker 9



If we want to see *when* speaker 9 breaks into the discussion, the notation at the lower left of the screen, (0 00 05 19), indicates the time in hours, minutes, seconds, and hundredths of seconds and corresponds to the counter time on the videotape which has been recording the classroom interactions. Since our VCR counter measure time rather than arbitrary units, the researcher is able to locate data points on the video without having to resort to more expensive and cumbersome systems, such as one which would generate and read SMPTE time code both in the data file and on the videotape. If we want to know *who* speaker 9 is, we can toggle to this screen and see a class list with demographic information on each student. (Figure 4)

Different Users and Settings

The users of this system are not limited to those with research budgets and research assistants. It could be used by language learners, instructors, and teacher-trainers — anyone interested in exploring issues of classroom discourse or those doing research in psycholinguistics and classroom interaction. The system could be used in the classroom following a data-collection session. The students and instructor could work together as a group, hypothesizing and querying the database. For this type of setup, the computer collecting the data sits in a corner of the classroom, connected to a liquid crystal display panel (such as a Kodak Datashow, or ViewFrameII) set on an overhead projector. When the data-collection session is over and the class wants to work together, the computer cart is moved forward so that the computer display can be projected on the large screen at the front of the classroom. The system can also be used by the instructor or language learners after class.

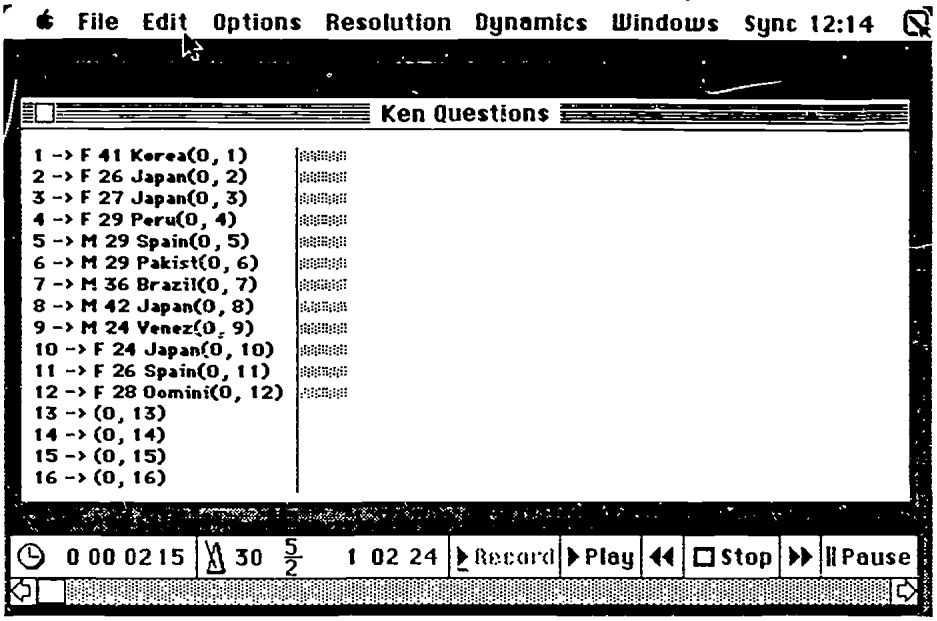
RESEARCH QUESTIONS

The software in development is designed to guide the student and instructor in meaningful inquiry. It can help instructors and students interested in exploring measurements of classroom discourse.

Who's Talking?

The software lets you see who's talking when. How much speaking practice are the students really getting? How does this change when the same student is working in a whole class setting or in a small group? How do the

Figure 4: Demographic display of each of 12 speakers



demographics of a small group or a class affect student speaking time? The software will allow the user to study a given student's speaking patterns in different classes. We can look at the total number of contributions of a speaker, or the total time a student spoke during the class, or the number or length of his or her utterances.

How is an utterance defined? The researcher sets the parameters — and can even look at the data and summary statements again after setting different parameters. The user must choose a threshold such that the machine disregards the silences which are not to be counted. In this way the tiny gaps between words or phrases do not get interpreted as gaps between utterances.

Measurements in the program concern:

- Length of utterances;
- Frequency of utterances;
- Relative volume of a given student's speech;
- Time between utterances – same speaker;
- Time between utterances – change of speaker;
- Overlap of utterances.

For example, we can examine the range of Reiko Nashimoto's wait times and then later compare it with the wait time of other students.

NASHIMOTO, REIKO

Wait time between speakers
Min: 1.2 secs
Max: 3.3 secs
Average: 2.2 secs

Or if we are interested in comparing groups of students, we can look at various kinds of data by age groups or by country groups. For example:

Country group: Latin Americans

Frequency of utterances
Spoke 108 times for a total of 92.6 secs

Duration of utterances
Average: 4.3 secs

Volume of utterances
Initial: 43
Average: 51

Wait time between speakers
Min: .8 secs
Max: 4.8 secs
Average: 2.9 secs

As you can see, this summary of Latin American students is different in wait time, length, number, and volume of utterances from the one shown for Asian students.

Country group: Asians

Frequency of utterances
Spoke 56 times for a total of 108.6 secs

Duration of utterances
Average: 2.5 secs

Volume of utterances
Initial: 32
Average: 36

Wait time between speakers
Min: 2.0 secs
Max: 7.7 secs
Average: 5 secs

We can also look at issues by class group, by session, by a class sub-session, or even merge groups of sessions to examine larger bodies of data for individuals or groups. Did a student lose interest or stop participating after being interrupted? Did particular sub-groups (by gender or nationality) dominate a certain portion of the conversation? We can look at the same data with new parameters, or look at an old data set with new parameters.

The system lets us collect concrete data easily and relate it to students' and instructors' perceptions of student participation. It lets us calibrate objective measurements against the perceptions of students and teachers. We can, therefore, examine larger issues such as those noted below.

Student's Actual Classroom Speaking Time

What's the relationship between a student's actual classroom speaking time and that same student's perception of his/her classroom participation? How does a given student's actual classroom speaking time correlate with that same student's measurable progress in oral communication skills?

Instructor's "Teacher-Talk"

Without manual coding and tabulating, instructors could determine the percentage of class time taken up with their talk. Is the amount of time the teacher speaks significantly different in different class groups, or is it fairly consistent across different class sessions and class groups? What is the relationship between the amount of time it takes a teacher to explain a task and the time it takes for a student to accomplish it? For example, in classes where the the goal is student speaking practice, how long does it take for the instructor to set up an oral activity compared to the amount of student-produced communication? A teacher-in-training might decide to reduce the percentage of her speech; this system would let her measure her progress. How does the percentage of class time the teacher talks change over time?

Directions of Communication Exchange

Which students or groups does the instructor direct questions to most often? Is the instructor inadvertently favoring or ignoring certain students? Does she avoid students who speak more haltingly and solicit more often from those who speak with more fluency? Are certain students gaining the floor more often than others by directing questions to the instructor more frequently?

Speaking Time of Particular Classroom Activities

What types of activities actually produce more student talk? Structured or free discussions? Small group work? Pair work? Question-and-answer activities? How does "Role Play" or "Persona" work affect the length of a given student's utterances and total speech time? If a student is engrossed in a role play, will discourse patterns change significantly? Will it be easier for the student to speak at more length as persona than as self?

Wait Time

Wait time is defined as the length of time a person waits before speaking, or the silence between the end of one person's utterance and the beginning of another's. Variance in wait time—even microseconds, which this system can measure—make a significant difference in the psycholinguistic perception of the listener. We see how true this is for speakers of the same native language during an intercontinental telephone call when the natural length of pauses is distorted by a technique called TASI (time assigned speech interpolation, used to delete some of the gaps and pauses in a conversation in order to transmit many conversations along one line). When the wait time becomes unpredictable, we become acutely aware of how a speaker's pauses serve as nonverbal cues and how critical they are in sustaining pleasant conversation.

The ramifications of barely measurable differences in wait time are also important in conversations between speakers of different languages. A pioneering comparative study found the wait time of Athabascans to be much longer than that of Anglo-Americans. The findings also illustrated how speakers from cultures where the wait time is comparatively longer than that of the listener are frequently perceived as slow-witted, sullen, or indirect. Speakers from cultures where the wait time is comparatively shorter than that of the listener are frequently perceived as aggressive or overbearing.

In the ESL classroom, students with a comparatively longer wait time may not succeed in interjecting themselves into an animated discussion without instructor intervention.

Volume

Each speaker's volume is measured on a scale from 1 to 125. How important is volume in enabling a speaker to grab the floor in a discussion? Is the interrupter often louder than the speaker who is interrupted? Are there differences in volume for particular nationality groups? In other words, do some nationalities tend to speak more loudly or more softly than others? If so, what might this mean for those who may tend to speak more softly, such as some Japanese women?

Spatial Relationships and Geography of the Classroom

What is the effect of seating and arrangement of chairs on those who speak more than others or less than others in the classroom? Do instructors favor one side of the room over the other, or front rows over back rows, or (as one student surprisingly claimed) the right side of the room over the left side?

Speaker Overlap

What are the patterns in overlapping speakers? What is the duration of the overlaps? Who has the least tolerance for overlap? When is overlap necessary to keep the interlocutor speaking? Who is most vulnerable to interruption? What is the effect of an interruption on the subsequent participation of a student? Who interrupts whom and under what conditions?

Gender

As in studies of native speaker discourse patterns, do men tend to dominate mixed settings? Who talks more—the men or the women? Some researchers have found that a conversation will be dominated by one gender or another during a given session. Is this true of language classrooms? Does this change significantly by nationality? Initial impressions of second language classes do not tend to support the finding of researchers studying native language classrooms—that is, that men dominate. I think we will find conclusively that women tend to contribute more than men in certain second language classrooms.

What about the length of utterances? In native language settings, men are said to have longer utterances, while women tend to speak in bursts. Is this true for speakers in a multicultural group?

Similarly, we may wish to compare the aver-

age length of utterance for particular nationalities or age groups.

Summary

In a classroom setting, this computer-assisted discourse analysis system can:

- permit the class to compare perceptions with quantitative data. Several researchers report that women (or other classroom minorities) are sometimes erroneously perceived as having dominated a discussion. This phenomenon may be particularly important to spot in a multi-cultural classroom, where one nationality may be in the minority;
- help instructors deal with "problem" classes and/or students who attempt to dominate discussions;
- give students information about what is happening, thus giving them options for trying new and different discourse strategies;
- convert what can be highly charged value judgments into something mechanical, neutral, and distant;
- empower the students and instructor;
- help instructors deal more effectively with the dynamics of the classroom;
- help instructors better understand the needs of students.

Outside of the classroom, students can use the system on their own. It can:

- permit students to compare their own past and present discourse patterns;
- permit students to compare their own discourse patterns with those of native speakers;
- permit students to compare their own discourse patterns with those of other students—those they think "speak better," or those who succeed in grabbing the floor;
- permit students to see how much they spoke in relation to the rest of the class.

Using a computer-assisted system for discourse analysis may help students and teachers become more aware of patterns of discourse in the classroom. The data the system provides may help guide students in developing better oral skills, and instructors in developing better instructional strategies.

Notes

1) While the pilot functions as described here, it remains cumbersome to set up and operate for casual classroom use. Funding is sought to complete additional programming, modifications of the system, and documentation. Grateful acknowledgement is due to Ed Imbier, an engineer and the author's former MIDI instructor, who provided the expertise required to set up the hardware and test the system. Thanks are due also to Anthony Henin, a Harvard undergraduate and Hypercard programmer.

2) MIDI: Musical Instrument Digital Interface

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Integrating Video into Teacher Education

Susan Stempleski
Teachers College, Columbia University

As the field of language teacher preparation moves away from approaches that prescribe techniques and skills to be imitated and applied in the classroom and moves toward approaches that involve student teachers in developing their own theories of teaching (Ellis, 1990; Gebhard et al., 1990; Richards, 1987), it becomes increasingly necessary for teacher educators to use materials and strategies that promote critical self-awareness and reflection. What role can pre-recorded videos, such as those described by Brodkey (this issue, p. 84), play in teacher education? This article suggests a rationale for using such videos in teacher education and offers general guidelines for integrating videotaped teaching demonstrations into an inquiry-based, discovery-oriented approach to teacher preparation and development.

Why Use Video

In language teaching, video is recognized as a powerful teaching aid because of its ability to present a complete communicative situation. Learners not only *hear* the language, they can also *see* the participants, their relationships, their behavior, the setting in which the communication takes place, and the paralinguistic elements involved (body language, gestures and facial expressions). Similarly, in teacher education, video's ability to convey both *pictorial* and *verbal* information make it a useful tool for presenting the complexities of the classroom situation. In addition, video technology makes it possible to present examples of teaching styles, approaches and techniques within a context which can be stopped, rewound and replayed. With video, the interaction within a lesson can be viewed as often as desired, and the medium's ability to focus on different aspects of the teaching act at different viewings not only helps teachers to better understand the process, it can also help to develop their powers of observation and analysis.

If student and practicing teachers are to be involved in their own development, they need to develop an awareness of the complexities of teaching and learning, and to be stimulated and encouraged to experiment with new ideas (their own as well as others') in their classrooms. Observation through video recordings can play a vital role in this process. Video enables the teacher educator to present pre-selected segments from a wide variety of classroom situations and allows student teachers to observe the process of teaching and learning in action, thus providing them with an invaluable extension of their experience. Normal teaching being rather conservative, video can be used to expose student teachers to approaches, methodologies, and techniques that they would ordinarily not get a chance to see, and give them a direct experience with unusual or innovative teaching approaches. By heightening teachers' awareness of what goes on in other classrooms, video can thus contribute to the autonomous development of teachers.

The Role of the Teacher Educator

The teacher educator plays a key role in the success or failure of any video used as part of a teacher education program. It is the teacher educator who relates the video to student teachers' needs, promotes critical viewing, encourages teachers to experiment with new ideas, and integrates the viewing experiences with other activities in the teacher education pro-

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Susan Stempleski teaches in the M. A. Program in TESOL at Teachers College, Columbia University. Her numerous publications include Video in Second Language Teaching: Using, Selecting and Producing Video for the Classroom *(published by TESOL, 1992) and* Video in Action: Recipes for Using Video in Language Teaching *(published by Prentice Hall International, 1990) for which she and her co-author, Barry Tomalin, received a commendation from the Duke of Edinburgh in the English-Speaking Union 1990 English Language Book Competition.*

gram. A particular recording's chances of achieving the important goals of raising student teachers' awareness and encouraging reflection on their own and others' teaching practices can be improved or destroyed by the manner in which the teacher educator introduces the video and the activities which the student teachers undertake in conjunction with viewing.

Suggested Guidelines

In methodology classes and workshops at Teachers College, pre-recorded videos are often used as a means of providing student teachers with a more direct experience of different methodologies than they can get from reading. Some methodologies, like the Silent Way or Suggestopedia, can best be understood by viewing demonstration lessons by teachers who have been trained at centers where these methodologies have been developed. An example of a video I have used in my own methodology classes is "The Lozanov Language Class," a 30-minute tape in which Evelina Gateva, a Lozanov-trained teacher, conducts a class in Italian according to the principles of Suggestopedia. In using this and other teacher training videos, I have found that student teachers benefit from a task-oriented approach to viewing that incorporates the following principles:

Provide the necessary background information.

Viewing a lesson on videotape is not exactly the same as observing a live lesson from the back of a classroom. It is the nature of the video camera to be selective; it does not look at the people and the activities in a classroom in the same way the human eye does. In my own experience, student teachers want, and often need, additional explanation to better comprehend the events presented in the demonstration lesson. This can be provided in a number of ways: video recordings of the teacher talking about the lesson on the tape, background information in the form of related readings, or background notes on the demonstration lesson.

Use the video as an example, not as a model.

One of the risks involved in using videotaped teaching demonstrations is the tendency of student teachers to view such recordings as *models of perfection* to be copied. This tendency can have the effect of devaluing or discounting the student teachers' own experience and opinions (Cullen, 1991). If video recordings are to be used to help student teachers develop their own theories and styles of teaching, it is important for the teacher educator to state clearly to the student teachers that the teaching samples shown are not intended as *models* to be imitated, but as *examples* of teaching practice to be analyzed and discussed. Student teachers should be encouraged to relate the examples shown to their own ideas and attitudes, and to discuss both the practices they have seen demonstrated and their own alternatives.

Relate the video to other materials and activities.

An appropriately integrated approach to using video requires careful decisions about the function and place of video material within the teacher education curriculum. Video cannot operate effectively in a vacuum. It has to be used in combination with other materials and activities which make up a teacher education program and integrated into the total teacher preparation scheme. Otherwise, there is the danger that the video will be perceived as, and thus become, an end in itself, rather than as a means to achieve specific learning objectives.

Do not feel obliged to show the whole video.

It is not always necessary or desirable to present a video of a complete lesson. With video, it is always possible to select and isolate individual segments for presentation. Obviously, showing only five minutes of a lesson prevents viewers from seeing lesson development, but it can provide a wealth of data for

analysis and discussion. To encourage more active and in-depth analysis on the part of the viewers, I have found it useful to present relatively brief segments and allow opportunities for focused, repeated viewing. The choice of particular segments depends, of course, on how the video material is to be used.

Establish a focus for viewing.

Using video can complicate as well as clarify ideas. Rinvolucri (1986) reminds us that whereas a lesson plan on a page is a mere potentiality, a lesson on videotape is a closed, unique historical fact. The actual lesson presented on a video may have little to do with the viewer's own situation. In order to encourage viewers to sift out irrelevancies, and to focus instead on aspects that can be modified or adapted to their own classes and teaching styles, many teacher educators develop viewing tasks, usually in the form of a worksheet, which student teachers complete as they view the tape. The following example, focusing on student responses, is an example of one such worksheet adapted from teacher-training exercises presented by Stevick (1986).

Immediate versus delayed response

1. How quickly do the students respond to cues from the teacher?
2. What are the advantages of having students respond immediately?
3. What are the disadvantages?
4. What are the advantages of having students wait a while before they respond?

Order of response

5. Do the students respond in a predictable order, or in a more random way?
6. What are some alternatives in deciding who responds next?
7. What are the advantages of each alternative?

Choral versus individual response

8. Do the students respond in unison, or individually?
9. What are some alternatives to whole class and individual responses?
10. What are the advantages of each alternative?

There are, of course, numerous other areas viewers can be asked to focus on: error correction, teacher language (register, tone of voice, etc.), language skills practiced, student-talking time versus teacher-talking time, resources used, and the physical organization of the class—to name just a few. The particular questions to be asked will flow from the video material being used. The idea behind the questions is to get viewers to more closely examine the procedures, materials, techniques, etc., employed and to draw on their own experiences as students and teachers to generate alternatives and expand their teaching repertoires. The use of such worksheets, in which the teacher educator has previously determined the focus points, constitutes what Cullen (1991) refers to as a "directed" approach to using video in teacher education.

An alternative to such "directed" approaches is a "semi-directed" approach, in which the student teachers themselves decide which points to focus on. The following is my own adaptation of Ramani's (1987) procedure: 1) participants are provided with some minimal background information about the lesson; 2) in groups, participants make a list of three things they would be interested in looking at while viewing the video; 3) each group's views are elicited and written on the board; 4) participants view the lesson and take notes; 5) in groups, participants discuss and write up their answers to two questions: "Which aspects of the lesson did you consider most satisfactory, and why?" and "Which aspects did you consider least satisfactory, and why?"; 6) each group presents its responses to the questions discussed in Stage Five; 7) participants are asked to suggest alternative courses of actions for the least satisfactory aspects; 8) in the next class, participants are provided with a handout summarizing the issues raised, and suggesting relevant reading materials.

Such a "semi-directed" approach has the advantage of being more closely related to the student teachers' concerns, but it requires more

flexibility and experience on the part of the teacher educator. Regardless of which approach is adopted, it is essential that specific focus points be determined before the video is shown. Little benefit will result from merely showing a video in class; it needs to be used in combination with activities which encourage close examination of the classroom practices presented as a starting point for examining their own ideas and relating them to teaching theory.

Encourage critical, reflective viewing.

While the use of video to present teaching "capsules" is seemingly sound pedagogically, Wright (1990) has pointed out the tendency of the medium to impose its own schemata and to turn attention away from the kinds of reflective work that may bring viewers' attitudes and values to the surface. However, this tendency can be countered by the use of critical viewing activities of the sort outlined in the "semi-directed" approach above, in which participants are invited to examine their own preferences and take these, rather than the external "authority" represented by the videotape, as criteria for regulating their own teaching behaviors and practices.

Critical, reflective viewing can be further encouraged by requiring student teachers to engage in post-viewing activities which involve some form of writing. As Bartlett (1990) points out, "In writing, we begin not only to observe, but we take the first step in reflecting *on* and *about* our practice" (p. 209). As a follow-up to viewing activities done in class, participants can be asked to write their reactions to the video and to make connections between the ideas presented and other elements in the teacher education program. If student teachers need suggestions for what to write about, the following list, adapted from Porter et al. (1990), may be helpful:

1. React to the lesson presented on the video.
2. Describe the content of the video.
3. Ask questions about the video.
4. Relate the video to your own experiences.
5. Relate the video to something you have read.
6. Argue for/against a teaching technique or procedure shown on the video.
7. Explore pedagogical implications of teaching practices observed on the video.
8. Describe new knowledge you have obtained from the video.
9. Fit the knowledge obtained into what you already know.
10. Question the applications, motivations, or significance of what you have seen.

Conclusion

The complexity of the teaching and learning process, and the resulting need to provide student teachers with experiences which involve them in developing their own theories of teaching, has become an increasing focus in teacher education. I have outlined only some of the ways in which video can be integrated into a teacher education scheme and used to promote student teachers' awareness and reflection on their own and others' teaching practices. Specific teacher preparation programs, student teachers' needs, as well as the creativity and experience of the teacher educator will suggest other possibilities. However, if video is to have a critical impact on teachers' professional development, its use must be guided by principles which encourage the development of investigative and decision-making skills that teachers need to function as responsible and autonomous teachers.

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Teacher-Training Videotapes for TESOL

Dean Brodkey
University of New Mexico

What is a Teacher-Training Videotape?

Unlike videos prepared for use in classes for ESL learners, teacher-training videotapes are intended for those who are studying to become ESL teachers. They illustrate what goes on in an ESL classroom as conducted by a skilled teacher and usually take the form of excerpts from actual ESL classes interspersed with teachertalk, voice-overs, or still shots of teaching principles printed on the screen. Unlike individual self-study tapes made during practice teaching, teacher-training videotapes are finished products made for distribution to educators to use in their TESOL Methods classes or in training new TESOL teachers. Although they are not widely known, and do not come close to the number of instructional tapes for use in the ESL classroom currently on the market, there are many of these tapes in existence. I regularly use ten to fifteen teacher-training videotapes in my own TESOL Methods classes, and have compiled a growing bibliography which will be discussed in this article.

Why Use Pre-filmed Teacher-Training Tapes?

Like most teacher-trainers, I urge students to participate in teaching practice and to do classroom observations. These are necessary elements in any reputable TESOL teacher-training course. Most good teacher-training programs are set in the midst of communities with large ESL learner populations. Indeed, they are often the very populations the novice teachers plan to teach. The learners may be adult Europeans studying English on holiday in England, or children doing their required English studies in elementary or secondary schools in Africa, Latin America or Asia, or immigrants enrolled in night school English programs in major American, Canadian, or Australian ports of entry. Training programs in such locales, provide novice ESL/EFL teachers with plenty of opportunity to observe and practice-teach live classes in conjunction with the study of theory and library work.

My own situation in a southwestern state university in the USA is more frustrating. We enroll large numbers of eager novice ESL teachers, yet have few large, appropriate classes of learners in which to place observers and practice teachers. My typical ESL Methods class contains twenty-five or thirty students. Of these, perhaps half are experienced, licensed public school teachers who need to add an ESL endorsement to their credentials because they hope to be assigned to teach the handful of nonEnglish speaking children in

Dean Brodkey is Associate Professor of Education at the University of New Mexico. He has taught English in Thailand, Sri Lanka, and Nigeria, and has been involved in TESOL teacher training since 1969. He now produces and uses TESOL teacher training videotapes for his Methods classes and publishes a Bibliography of videotapes for teacher-training.

their school. A few will hope to teach College Intensive English and somehow manage to do their observation and practice in our tiny, thirty-student university ESL program. Possibly two will be missionaries on their way to China or Central America, which they have never visited. A few more will be planning to tour Europe and teach on the side. One may be an experienced medical writer who plans to teach medical doctors in Spain. And there will always be a handful of returned Peace Corps volunteers or travelers with two or three years experience teaching ESL abroad but no certification. The class will divide strongly along lines of preference for lower elementary age, middle school, high school, pre-college intensive English, adult immigrant education, and professional-level ESP teaching. Half will be planning to work in ESL or Bilingual Education settings in the Southwest and half will plan to go overseas to EFL posts.

A Videotape Bibliography

How is one to provide the kind of "real" classroom observation appropriate for such a mixed cohort of teacher-trainees? Part of the answer lies in pre-filmed videotapes that illustrate the types of classes the students expect to encounter or that the teacher trainer feels they should be prepared to expect. This variety is not often found in a single geographical area. And some of us think it is appropriate to require all "certified" ESL/EFL teachers to have some comprehensive overview of the remarkable variety of teaching situations in which they may find themselves at some time in the future.

For these reasons, several years ago I began to collect as many pre-filmed classroom ESL tapes as I could, in a wide variety of settings. Our university Audio-Visual department provided some. I found others while a visiting professor at a neighboring university. Colleagues in ESL began to send me tapes or reference material in order to obtain them. Finally, the Directory of ESOL Video Materials being compiled at the University of California, San Diego, provided a host of useful references which eventually served as the basis for a separate bibliography of teacher-training videotapes which I now compile and distribute. The current edition has listings of over 150 individual tapes, many of which appear in series form, and which range in production quality from fully professional broadcast tapes to unedited amateur footage of interesting classes.

Of the nearly 150 tapes I have found, I have personally viewed perhaps only twenty-five, half of which I have also used in my own teacher-training classes. Thus, my evaluative comments in this short article must be tempered by the knowledge that I have overlooked much excellent material known to others. In some cases, I have not requested tapes that were too costly to preview. In other cases I have reviewed tapes that are no longer available for distribution. The entire collection needs study by a professional panel which can allot time for a fair viewing to every tape. The "review" section of the bibliography is, I believe, an important and at present inadequate feature for subscribers.

The *Bibliography of TESOL Teacher-Training Videotapes* has proven to be a worthwhile project insofar as over 200 teacher-trainers worldwide have ordered copies.

How Usable are these Tapes?

The basic findings related to this collection are that amateur efforts predominate and fully professional productions are rare. Most tapes are semi-professionally edited. Distribution copies tend to be far from broadcast quality and may contain blurry images and questionable sound. Yet, in most cases there has been an attempt at smooth editing with insertions of informative commentary for teacher-trainees. Only a few tapes are essentially unedited footage of an entire class session. Even these, however, can be useful in a teacher-training class if one follows the suggestions in Susan Stempleski's article in this issue.

The only completely self-contained course for ESL teachers of which I am aware was an ambitious program designed by Edwin Cornelius for Nigeria in the 1960s. The teachers could do self-study on site in rural areas with the help of a detailed text based on programmed instruction, accompanied by actual

classroom footage. Whether this was on videotape or film, I am no longer sure, but the teaching principle is closely related. The teacher sat in a globular booth, running the tapes on a self-paced schedule while referring to the written text. At key points in the tape, a beeper and still shot would signal a problem for the teacher, who would refer to the text to identify the pronunciation or grammatical item to be addressed. The physical remains of the booths and materials were visible in storage at UCLA when I was a student there in the 1960s.

Nothing so ambitious appears in the Bibliography today. Instead, we seem to have a handful of fully professional, rather short broadcast quality films produced by government educational units such as community boards of education, even fewer examples of commercially produced tapes, and a much larger number of semiprofessional, longer attempts at teacher-training, usually done on limited budgets by university professors. The latter vary widely in technical quality and in style of presentation, some providing extensive voice-over commentary or screens of text listing "principles" to be observed, while others provide student workbooks or texts. Many are merely rough edited footage with little or no explanation, and it is up to the teacher-trainer to add commentary.

Then, there are films which do not deal directly with the ESL classroom, but are of distinct value for language teacher-trainees: videos on child language development, on cross-cultural communication, lectures on theory, and so forth. These run the gamut from syndicated commercial television programs to films of visiting lecturers at universities.

I would like to discuss several of the tapes that I use and some of the concerns I have about using them effectively. I will also summarize the results of two brief student surveys administered in order to gauge student perception of the usefulness of the tapes. Finally, I would like to comment on the need for ever more such tapes, for professional reviews, and for making previewing and selection of tapes a handier process than at present. I will begin with the question of locating the ideal training videotape.

Which is the Best Teacher-Training Tape on the Market?

Colleagues occasionally write of their frustration in being unable to locate a single, good, professional quality videotape series to order for their Methods classes. This is quite a problem. Fully professional, broadcast quality tapes are few in number, limited in length, and costly. A good example is the recent production of the Toronto Board of Education ("TESLVISION: A Video Resource for Teacher Training.") While eminently well filmed, it is limited to the adult immigrant class and brief. Moreover, the package is quite expensive: clearly out of reach for my own university department at present. The portions I saw at the presentation in San Francisco last year seemed expertly done and highly useful. However, I have not had the opportunity to view the whole series at leisure.

This is of course not the only fully professional series. In the past, the BBC series "Teaching Observed" was a model demonstration of lower school EFL work in various Asian and African countries. Filmed in 1975, the techniques shown appear now to be a bridge between the older audiolingual methods and the emerging communicative approach. But the series was very expensive to purchase and, in any case, has been withdrawn from publication. Perhaps only a few now have access to this important production.

Then, there is a problem of producer reluctance to release good tapes. I was provided with a very professionally filmed set of classroom tapes done in the southwestern United States, showing model teachers of bilingual education. Yet, the producers were chary of having the tapes listed in a formal bibliography out of concern for possible negative comment about sensitive teachers and local ethnic communities. Shyness about distributing a homegrown product is not uncommon in our field, however professionally done the tape. A similar problem was encountered with good tapes supplied by a Japanese professor showing Japanese ESL teachers at work. I was admonished not to publish these. The same reservation was cited by the producer of a Canadian video showing novice teachers at work in various

interesting settings during their teacher-preparation practice. I regret being unable to use these illustrations.

Again, a major impediment that any producer of a single methods series is bound to encounter is the question of professional acceptance of any "model" method, especially in this period of uncertain orthodoxies. Teacher trainers, who purchase and recommend these tapes, are frequently a finicky lot whose personal philosophies may run counter to the filmmaker's. Many of the older tapes in the Bibliography, especially those done ten or more years ago, contain examples of Audio-Lingual practices, MimMem, choral drills, grammatical syllabi, and approaches out of tune with the latest fashions in theory. A teacher-trainer will want adequate preview information before going to the expense of ordering a tape.

Finally, the market is just too small to justify a first class, professional production for teacher training. Given the limited cadre of professional teacher-trainers compared to the giant market of ESL learners, it is easy to see why commercial production money has gone into ESL classroom videos and not teacher-training videos.

All these elements—cost, orthodoxy, and sensitivity—work against a rush to re-create model, broadcast-quality videos for teacher-training purposes. However, as of this printing there have been several new productions along this line by Longman Publications, Addison-Wesley, and The Alberta Educational Communications Corporation.

Related Topics of Interest

Besides the "model classroom tape" there are other videos that contribute to ESL teacher education, yet are not, strictly speaking, classroom tapes. An example is the film by Professor John Gumperz ("Cross Talk: Multiracial Britain"), whose sociolinguistic and phonetic analysis of interactions between Pakistanis and English people in London is highly informative and analytic, yet not a classroom tape at all. Still, a teacher-trainer might value it for its lesson in cross-cultural sensitivity. My own students have strong, positive reactions.

Meiners and Johnston ("See Me During My Office Hour") show interactions between typical American professor-types and American students. This is not even an ESL tape, yet has something to say about American cultural norms and preferred one-to-one interaction styles with American professors.

Also, foreign language teaching approaches, such as exemplified by individual teachers of note (Terrell, Capretz, Rassias, Asher, Gattegno or Lozanov) have relevance for the ESL teacher.

The Bibliography should also include informative videos about how a teacher can use innovative technology in preparing lessons. Our university has demonstration tapes of CALIS (Computer Aided Language Instruction System) and the INTEL demonstration tape of Digital Video Interactive techniques for combining real time video with computer generated text and graphics and laser disc sound.

In some cases, I have listed Public Broadcast programs which cover areas of great interest to ESL teachers and which are for sale. The PBS series on "The Mind" which includes a section on language and the brain is such a tape, and it includes a textbook as well. Lamentably, other recent PBS films such as the British "Horizon" hour covering Canadian French immersion schooling and featuring lectures and demonstration of "natural method" by Stephen Krashen as well as most of the innovative methodologies, are not in distribution, and use of off-air copies is strictly prohibited by law. The same restriction applies to the NOVA film "Baby Talk" which presented segments of commentary by such leading linguists as Chomsky, Bruner, Slobin, Snow and Clark, and culminated in the Vygotsky-Piaget debate. It simply is not available for distribution.

What does the Bibliography now Include?

Among the 150 tapes in the Bibliography one can find a wide variety of pertinent topics for the class. Topics include all of the following and more:

- How to use video effectively in the ESL class;
- The diverse roles of TESOL professionals;
- Strategies for the multi-level adult classroom;

- •Scenes from a refugee camp;
- •Going to an American professor's office;
- •Operation of a school-wide ESL program;
- •Bible studies for ESL learners;
- •American family life;
- •The situation comedy and ESL learning;
- •Family English literacy;
- •The elementary school ESL program;
- •Adult Basic Education and ESL;
- •EFL approaches overseas;
- •ESL tutoring techniques for lower school;
- •Cooperative learning principles;
- •International Teaching Assistant training;
- •English for Japanese learners;
- •Placement testing;
- •Communicative classroom routines;
- •Views of the innovative methodologies;
- •Working with the Limited English Proficiency student;
- •Teaching writing in college ESL;
- •Bilingual methodologies;
- •The English medium school abroad;
- •Cross-cultural relations;
- •Peer coaching;
- •Child language development;
- •Second Language Acquisition;
- •Math-Science and language instruction;
- •Teaching pronunciation;
- •Methodological issues in TESOL.

How does one best use a Prepared Videotape?

Teacher trainers seem to have widely varied recommendations about using videotapes with novices, but there is general agreement that something ought to be done extemally to clarify the experience. Stempleski's article in this issue outlines excellent suggestions for use of relatively unedited tapes and for examination of details from the learner's or trainer's personal perspective. Among her most useful suggestions is, after a discussion, to require trainees to write responses to thought questions, since novices often have great difficulty knowing what to focus on in a written commentary.

In my own classes, a tremendous difference can be seen between the responses of experienced classroom teachers and complete newcomers to teaching, however mature. Occasionally, when I have just shown a video of a detailed, explicit activity illustrating a quite specific principle of language teaching, an otherwise mature and sophisticated novice will comment, "This is all pretty abstract, isn't it?" Classroom teaching experience prior to observation and video viewing seems essential.

In recent ESL teacher-training presentations using her own videotapes, Lois Meyer of UCLA focuses on brief, 3-minute clips taken from unrehearsed classroom scenes which she has filmed herself. These are not invariably of ESL teachers. Her ambition is to find the best teacher in any school, teaching any subject. One of her favorites is an elementary school math teacher. Meyer points out that the teacher's skillful use of manipulatives is a fine example of Krashen's "comprehensible input" hypothesis. She supplies worksheets outlining Krashen's hypotheses for guidance in viewing. Meyer also keys in on a teacher's use of repetitive language, attentiveness to every pupil, and so forth. She prompts trainees to notice and comment on these behaviors, always demanding "Exactly what did the teacher do?" so as to avoid flaccid generalizations.

Behavioral checklists of "what to look for" are slippery. At present, there is less than complete agreement in our field about principles of language teaching, especially when weighing the importance of a given activity in the context of an ongoing class. Teacher-trainers will have their own personal opinions to inject during a viewing. If experienced teachers of other subjects are in the class, a whole new set of perspectives often emerges, enriching the discussion. Was the important feature of the class its grammatical sophistication, the comprehensible input, its cultural appropriateness for the learners, its affective sensitivity to pupil self-esteem, or merely the teacher's magnetic enthusiasm or expert organization? Teacher-made checklists are remarkably varied, yet useful.

Judy Winn-Bell Olson's work ("Communicative Classroom Routines") intersperses segments of classroom activities with printed frames that ask for viewer discussion of key principles. In the same way, the Chicago Adult

Education series not only flashes principles on the screen but includes a learner workbook to guide the viewing and discussion. My trainees appear to like these insertions in a film and copy down the "principles" assiduously.

Another style of teacher-training videotape includes fairly elaborate segments of teacher-talk alternating with classroom shots. Principles and practices are described at length by the teacher, though without cues for class discussion. Typical examples are Patricia Richard-Amato's film ("An ESL Center in Action"), the Freeman's demonstration of a "unit" plan on fast foods ("David and Bonnie Freeman"), and my own series ("Teaching ESL in the Public Schools"). Through interviews, the master teachers are asked to describe their students, the problems they face in learning English, and the approach chosen. In the case of the Amato-Richard film, there is the added advantage of her complete teacher-training textbook, "Making it Happen," which is largely based on the videotape and which can be selected as a class text.

On a personal note, I like to accompany a film with a running written commentary on the blackboard as the film is shown. This is easily accomplished in a typical classroom where the blackboard is behind or to the side of the TV monitor. Students comment that the written remarks ("Grammar point: number agreement," "TPR activity," "note repetition of pattern by teacher," "ALM style dialogue memorization," etc.) are helpful even when the tape is not stopped for discussion or replayed. I find that writing also helps the several ESL speakers who attend these teacher-training classes, and who may be having difficulty with the audio portion of some amateur tapes.

Post-viewing discussion is also widely recommended. While the teacher-trainer will have important insights to contribute, in a mixed class with experienced teachers fresh points of view are not uncommon. Experienced teachers can show interesting stylistic prejudices. "I couldn't be an actor like that." "I don't think she needs to be quite that controlling in middle school!" "Her blackboard writing is so fast we laugh." "I can tell you that those children are proud of what they are doing. They aren't being browbeaten. It was the way I learned to speak English too." Small group discussions in which novices are grouped with experienced teachers often have salubrious results. In the end, however, it is clear to me that experienced teachers see and learn far more from any observation of videotapes than do novices who have little teaching experience to go on.

Some Research Results

In an attempt to sample trainee reactions to videotapes, I distributed questionnaires at the end of two recent classes. On the whole, the results were satisfying. Even though the trainees differ remarkably in background and interests, everyone found something memorable in the films. The majority were rated as "very" or "somewhat" worthwhile, and the different responses were clearly due to differences in student interest in the age level represented in the class: As might be expected, teachers of adults were bored by elementary school classes and elementary teachers were uninterested in adult classrooms. Moreover, it was interesting to note that the students felt they learned different things from videotapes than from observation of live classes.

One common student response not represented in the surveys is that much value is placed on clearly superior model teachers. Ordinary teachers received frequent negative comments, and no one wanted to see student teachers at work.

There were surprisingly few criticisms of the technical quality of these mainly amateur tapes. Fuzzy color was never mentioned, although lack of focus on blackboard work was sometimes a problem. The chief requisite seemed to be a clear audio track, not always easy to achieve with low student voices. Teachers have eminently recordable, loud voices.

Some Production Hints

Student responses to varied types of productions give some guidance to the would-be film maker.

1. Teachers on tape should be clearly master teachers, visibly superior to the run of the mill.

Student teachers are greatly impatient with models who are "average" in every way. Quirky teachers with unique individual styles may in fact be very effective, but risk alienating less original students in the class. Model teacher selection is a delicate problem. (I have also found that some of my most expert model teachers are too shy to consent to being filmed!)

2. Students appreciate voice-over and occasional still shots of principles or thought questions, however this requires a good deal of technical expertise.

3. Above all, voices must be recorded clearly. Some indistinct visuals are acceptable to students, but not indistinct sound. A garbled sound track presents an unnecessary listening problem for nonnative English speaking teachers in the class.

4. Blackboard shots or key views of written work must be in sharp focus, or the written work has to be re-filmed at another time and spliced into the edited final version.

5. Keep films to 30 minutes or less for a single viewing span. This avoids boring students and gives time for discussion in a fifty minute class.

6. Genuine, unrehearsed scenes are the way to go. Artificially enacted playlets never have the same authenticity or feel. Curiously, we notice that when ESL/EFL students are filmed live, they tend to be on their best behavior and the result is always better than expected by the teacher.

The Future

Several future directions seem advisable. While there has been extensive interest in the bibliography, subscriber response to requests for listings of new tapes or reviews of tapes being used are almost entirely absent. A better network for reviewing and listing tapes is needed.

Specific problems need to be covered in depth: how to deal with the very large, multi-level class; behavior norms in EFL classrooms in a variety of overseas and minority settings; what students customarily expect in a given educational system; classroom control of behavior problems; dealing with parents; promoting staff cooperation; establishing norms for evaluation of ESL skills; more on pronunciation; more on listening and reading instruction; more on the writing process; more of everything.

Filming needs to be done in far more diverse locales. While students appreciate a well-done film in the environment with which they are familiar, novices are often amazed to see the reality they may some day face in a foreign locale. What does it feel like to teach in a poor, tropical country? Why do children behave so beautifully in a foreign country when they are wretches at home? What is it like on the Navajo reservation? What do you do when they are too shy to speak out? What about the boisterous adult immigrant class in a night-school setting? How does one deal with ESL children in an American middle schooi who are struggling with English, yet behave like giddy teenagers? Do Japanese middle schoolers behave any differently in Japan? And how about the English of one's teaching peers who do not speak the language entirely fluently themselves? What do their classes look like?

Finally, in order to expedite matters, we need a coherent method of obtaining inspection and review copies of these videos so that teacher-trainers can have some good idea of what they are ordering and paying for.

TESOL work is remarkably diverse, and a well-prepared teacher has some sense of what is likely to occur in a wide variety of classrooms. For this reason, certainly, teacher-training videotapes have value.

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Using Computers in Language Testing

James Dean Brown
University of Hawaii at Manoa

We know from the literature that language learners have positive attitudes toward computers (Reid, 1986; Neu & Scarcella, 1991; Phinney, 1991). The question that arises, however, is whether language teachers have similarly positive attitudes and whether those teachers who are computerphobic can be coaxed into eventually using the incredibly powerful tools offered by computers. Perhaps, computers will become prevalent in the language teaching profession only when teachers see how computers can make their jobs easier by making teachers more productive and efficient.

One area in which computers can be particularly useful to teachers is in the area of language testing. Indeed, during the fifteen years that I have been in the field, I have seen computers and language testing become increasingly interrelated. The primary purpose of this article is to explore computer-based language testing, or more accurately to consider some of the common uses to which computers are presently put in language programs, some of the potential uses that may some day permeate all language programs, as well as some of the advantages and disadvantages of using computers in language testing.

Common uses of Computers in Language Testing

At the very least, personal computers can presently be used to do the following in language testing: scoring tests, managing and reporting test results, and providing statistical analysis of those results.

Scoring tests

With existing technology, it is relatively easy to connect a machine scoring device to a personal computer so that in-house scoring can be done. Naturally, a computer must be available, and a scanner must be purchased. In addition, specific answer sheets must be used in the testing process. For example, when I was director of the English Language Institute at the University of Hawaii at Manoa (UHM), we purchased a Scantron machine and connected it to my IBM-AT personal computer. We then had to make sure that we always had a supply of Scantron answer sheets on hand whenever we administered our tests. [They cost us about US$40.00 per thousand in Hawaii.] However, once these logistical issues were worked out, we found that the time necessary for scoring a 50-100 question test was reduced from several minutes each to 2-3 seconds.

Any test that is in a selected-response format (i.e., a format in which the students must select the correct answer, as in multiple-choice, true/false, and matching questions) can be scored by machine. Thus, machine scoring is especially useful for testing the receptive skills of reading and listening which are particularly amenable to valid assessment by selected-response types of items.

Of course, not all language tests are machine scorable. For instance, writing and speaking skills are not yet directly measurable in ways that lend themselves to machine scoring. However, using a machine to score some parts of a test can free up teachers' time and energy to do the correcting of more open-ended tests which use constructed-response formats (e.g., cloze tests, short-answer questions, compositions, interviews, etc.).

In short, a test battery can be developed so that it contains subtests that strike a balance between selected-response questions which are machine-scorable and constructed-response questions which must be scored by teachers.

J. D. Brown is currently a visiting professor at Temple University Japan. He is a regular member of the graduate faculty of the Department of ESL at the University of Hawaii at Manoa. He has published widely in the areas of language testing, curriculum design, and research design. His article, "Content-Based Language Testing," appeared in Cross Currents, *18(2).*

For example, our ELI Placement Test (ELIPT) at UHM contained six subtests, three in selected-response format (Lecture Listening, Reading Comprehension/Vocabulary, and Academic Proofreading), and three in constructed-response format (Dictation, Cloze, and Writing Sample). As director, I took delight in announcing that I would single-handedly score half of the tests if the teachers would only correct the other half. Naturally, it was the machine-scorable formats that I was volunteering to score, but I was easily able to accomplish this task alone, thus freeing the energies of 10-20 teachers from the drudgery of scoring selected-response tests so that they could concentrate on scoring the constructed-response tests.

Managing test results

Recent developments in personal computer technology have also changed data storage from paper files to storage on computer diskettes, hard drives, CD-ROM drives, and potentially to magnetico-optical drives and the new memory cubes that will change our ideas about how much data can be stored in a small amount of space from thousands and millions of bytes (roughly equivalent to characters) to billions and trillions of bytes. Think what these quantum differences will mean in terms of information storage and management, as well as information access and reporting for language teachers and students.

With all of this information storage potential on desktop computers, it is important to think carefully about the ways that computers can be used to help store and manage testing information. Database and spreadsheet software are particularly useful for storing and managing test information, but in distinctly different ways.

Database software functions much like a card file. Information is recorded on the computer screen just as it would be in a file card system. The computer creates records that are analogous to the cards in a card file. Each record can contain a number of fields and each field can contain a specific type of information, such as the student's name, identification number, sex, telephone, address, placement test score, achievement test score, course grade, and anything else that might prove useful. A filing system is then set up so that the records can be searched, sorted, or otherwise manipulated on the basis of the fields, and then printed out in any order and form that may be needed. There are many database programs that can be used—from the relatively expensive Paradox™ (1991) and dBaseIII Plus™ (1986) programs (which are available at computer stores) to fairly cheap shareware programs like PC-File™ (1985). [Shareware programs are ones that you can try free and pay later if you decide to use them. They are available from computer bulletin boards or public domain software outlets.]

At UHM, we used a database program called PARGrade™ (1990) that worked in conjunction with a couple of other software modules called PARScore™ (1990) and PARTest™ (1990). This package of three modules was particularly useful because they worked together such that records and test results would be read directly into the database as the tests were being scored. Then, selected fields within the records could be printed out as needed.

Spreadsheet software is similar to database software except that, instead of using a card file metaphor, it uses a huge spreadsheet metapher. The spreadsheet in this case can be thought of as a huge flat area of 256 columns by 8192 rows into which various types of information can be put, especially numerical information. In a spreadsheet, rows can be treated as records as in a database, while columns are treated as fields. Thus anything that can be done with a database can be done with a spreadsheet. However, a spreadsheet is easier to use for numerical manipulation and analysis for three reasons: 1) because of the way the information is displayed, 2) because there are many mathematical functions built into the program, and 3) because it is very easy to move, transform, or otherwise manipulate the data. Examples of spreadsheet programs range from the relatively expensive Lotus 1-2-3™ (1985) and Quattro Pro™ (1991) programs to shareware programs like As-Easy-As™ (1987).

Reporting test results

While reports can be generated directly from database programs or spreadsheet programs, there are two ways in which the information stored in a database or spreadsheet can be further processed to make it even more useful: through networking or through word processing a report in paper format.

Networking is usually accomplished by designating one fairly powerful personal computer with a hard drive to function as a server (or central storage device). Other personal computers are then connected through wires or existing phone lines to the server, and a network is created. If the appropriate networking and database/spreadsheet software are used, anyone who has a computer hooked into the network (and has the correct password) can almost instantaneously have access to the records of any given student. Such access can prove invaluable for instance to the director, assistant director, advisors, and secretaries in an intensive English program.

Word processing is another tool which can prove very useful in a language testing situation. A word processor is the computer analog of a typewriter, except it is much more powerful and flexible. In addition, it is fairly easy to swap information into and out of a word processor. For instance, the information from either a database or spreadsheet program can be imported in ASCII format (a universal file format) to any word processing program (e.g., WordPerfect™) for final additions and polishing for the production of a report of the results on a given test.

In fact, when I was director of the ELI at UHM, the secretary would use her word processing program to provide me with a list in ASCII format on the day before the ELIPT which included the students' names, social security numbers, graduate status, TOEFL scores, etc. Because we had no network, she created the list on a word processor and gave it to me on a floppy disk. I was then able to import the list into my spreadsheet without having to retype anything. When the testing was finished, I returned her file to her in ASCII format, but by then, it had the six ELIPT test scores and placement decisions for each student added. She then polished up the document, printed it out, and sent the resulting score report off to the various appropriate administrative offices on campus—all within hours. In short, the word processor made it possible for us to swap, share, and report information in a very efficient and flexible way.

Providing statistical analysis

Another type of software is available that makes it easy to not only score a test, and store the results, but also to analyze the results at the same time. For instance at UHM, at the same time that PARScore™ (1990) was scoring each test and putting the results in the database, it was printing out a statistical analysis of the test results. In this particular case, the report included the students' identification numbers, raw scores, percentile equivalents, and a histogram for the distribution of scores. In addition, descriptive statistics were provided including the mean, standard deviation, variance, and reliability coefficient. Item statistics included the item facility index, item discrimination, and number selecting each option. There are also software packages that perform much more sophisticated analyses and provide the correspondingly more complex information needed to do the computer-adaptive testing discussed below (e.g., MicroCAT Testing System™, 1984; Stenson, 1988; Wright, Linacre, & Schulz, 1990).

More on common uses of computers in language Testing

Using the computer and scantron machine at UHM has certainly made our testing program much more efficient. Now, it is possible to administer our six-part placement test in the morning (for 100 students at a time), score all parts, enter the data, analyze the results, and create a report of those results ready for individual interviews at 1:00 PM on the same day. This simply would not have been possible six years ago when we did not have this computerized setup.

Personal computers have indeed improved the efficiency of the placement battery at UHM. However, there is much more that can be done. Computers have made it possible for us to do systematic (pretest-posttest) course examinations in two forms for each of our eight courses. Thus, we are able to do diagnostic testing for the specific objectives of each course at the beginning of the semester and get feedback to the teachers within 24 hours. We can also do achievement testing at the end of each course and examine the amount of gain that was made objective-by-objective since the beginning of the course, and again provide immediate feedback to the teachers. This type of computerized testing has also helped us a great deal in examining and modifying the curriculum objectives, materials, teaching strategies, etc.

All in all, computers have had a heavy, positive impact on the curriculum of the ELI at UHM. If your testing program still lacks computerization, maybe you should be asking yourself why.

Potential uses of Computers in Language Testing

Using existing technology, there are three other potential uses to which computers can be applied in language testing: item banking, test administration, and computer-adaptive testing.

Item banking

Item banking is a set of procedures that can be used to create, pilot, analyze, store, manage, and select test questions (also called test "items") so that multiple exam forms can be created from subsets of the overall "bank" of items. Using these procedures, a large collection of items can be developed, from which tests can be created whenever needed.

While the underlying principles can be applied with the aid of traditional item analysis techniques (including item difficulty and item discrimination statistics), there is almost inevitably a problem associated with differences in the groups of people who are used in the piloting of items. However, a new branch of testing theory, called item response theory (IRT), obviates the necessity for having equivalent groups of students for each of the piloting sessions by providing what are called sample-free difficulty estimates for the test items, as well as item-free ability estimates for the students. A full discussion of IRT is beyond the scope of this article. However, anyone interested in the topic will profit from looking at Henning (1987), which discusses the steps involved in item banking as well as the necessary IRT statistics. An example of how item banking was effectively used in the ESL Placement Test at UCLA can be found in Henning (1986). There are two additional references which are recommended for those who want fairly technical treatments of the application of IRT to practical testing problems: Lord (1980), and Hambleton and Swaminathan (1985).

This is not to say that item banking is without potential problems. Some of the problems in using IRT for testing in general are outlined by Green (1988). Specific problems related to the validity of item banking techniques in language testing settings are discussed in Henning (1991). While a sort of item banking can be done with file cards, the use of the computer has made the procedures much more realistically attainable in normal language programs. An example of a software program specifically designed for item banking is the PARTest™ (1990) program. The previously mentioned MicroCAT program can be used not only for item banking but also for performing IRT analyses. Another less sophisticated program that can be used to help in item banking and creating tests is BestTest™ (1990).

Test administration

When tests are actually administered at computer terminals, or on personal computers, the process is called computer-assisted testing. Ordinary selected-response tests, like multiple-choice, true-false, or matching items, are relatively easy to adapt to computer-assisted testing. Such tests can be readily developed by using straightforward and relatively cheap authoring software like Testmaster™ (1988).

Even productive language item types, like fill-in and cloze, can be developed using authoring software like Testmaster™. However, short-answer items and language tasks (e.g., role plays, interviews, compositions, etc.) will prove more difficult to develop within the computer-assisted testing framework. Yet new technologies (like CD ROM and interactive video) do make voice interaction with a computer possible, and there is no inherent reason why interactive testing or even role plays, interviews, and compositions cannot eventually be developed as computer-assisted tests. The only limits are those imposed by the existing technology and the expense involved. As more and more sophisticated technologies evolve, we may see two happy consequences: 1) It will become possible to develop productive-item computer-assisted language tests; and 2) the cost of the technology will drop to within reach of most language programs.

The advancing technology has many potential ramifications for language teaching and testing. With reference to language media centers, I outlined in Brown (1992) some of the technological advances that may have an impact on language teaching and testing.

Consider the multi-media combinations that will be available in the very near future: CD-ROM players working with video-image projectors, and computers controlling the whole interactive process between students and machines for situations and language tailored to each student's specific needs. Consider the uses to which computer communications networks could be put. What about scanners and handwriting recognition devices? Indeed, voice sensitive computers and talking computers will be valuable tools in the language media services of the future.

However, the reader may reasonably ask why we should bother to develop computer-assisted language tests at all. One of the primary benefits to be realized from computer-assisted language tests is that they can be administered individually. As a result, the traditional time limits can be abandoned. Students can be given as much time as they like to complete the test because no human teacher or proctor needs to wait around while the test is taking place. Naturally, there are potential problems of cheating, but these can be overcome with a little planning and thought. This independence from temporal constraints is a distinct advantage of computer-assisted language tests over other pencil-and-paper forms of testing.

Given this advantage and today's technology, it is desirable and possible to administer fairly complex tests. Consider the possibility of administering writing tests at computer terminals as the final examination for a course. This would be especially appropriate if the students had been encouraged, or even required, to do all of their writing assignments in an ESL/EFL course on a personal computer. Why not allow the students to do their final examination writing on a computer and turn in the diskette at the end of the testing period—a period which could be quite long to allow for considerable revision. Naturally, there are some logistical problems that would have to be worked out, but it might just be worth the effort. We know that computers can be an effective tool for teaching writing (Neu & Scarcella, 1991; Phinney, 1991). Why not also use it as a tool for testing writing?

Computer-adaptive testing

Computer-adaptive testing is similar to computer-assisted language testing, but different in two ways. As Madsen (1991) put it: "The computer-adaptive language test (CALT) is uniquely tailored to each individual. In addition, CALT is automatically terminated when the examinee's ability level has been determined.... The result is a test that is more precise yet generally much shorter than conventional paper-and-pencil tests" (p. 237).

Descriptions of the mechanics of computer-adaptive language testing can be found in Tung (1986) or in Laurier (1991). In general, this type of testing depends very heavily on item response theory. During the testing at the computer terminal, unknown to the student taking the test, the computer is using a combination of

item response theory and the concept of flexilevel tests (Lord, 1980) to tailor a test specifically designed for each individual student. The flexilevel strategy means that within the first few test questions a general ability level has been determined in a fairly rough way. Then items which are suitable for each student's particular level are selected and administered by the computer in order to get a finer-tuned fix on the student's ability level. Because of this flexilevel strategy, it is not necessary for students to answer questions that are either too difficult for them or too easy as is often the case on pencil-and-paper tests. Indeed, it is possible in computer-adaptive testing for virtually every student to get a different test, a test suitable to his/her own particular abilities. (For more on the implications of computer-adaptive testing, including the promises, but also the threats, see Canale, 1986).

One example of the application of computer-adaptive testing in the Montgomery County Public Schools is provided by Stevenson and Gross (1991). Another example of computer-adaptive testing is provided in Madsen (1991), in which such testing is applied to students at the Brigham Young University in Utah for testing listening and reading skills. This article demonstrates that many fewer items are necessary in administering computer-adaptive tests than are necessary in pencil-and-paper tests, along with correspondingly shorter times. For instance, the computer-adaptive reading test in the Madsen article required an average of 22.8 items to adequately test the students, and it took them an average of 27.2 minutes to finish the test. A comparable conventional test required 60 items, which took the students forty minutes to finish.

For much more on computer-adaptive testing, I recommend the "primer" on the topic provided by Wainer et al (1990). For a book that is a bit more technical on the same topic, see Weiss (1983). For even more technical treatments of the application of IRT to practical testing problems, see Lord (1980) and Hambleton and Swaminathan (1985).

Advantages and Disadvantages

As with any educational endeavor, the use of computers has both advantages and potential problems. It would be unfair to conclude without touching on these.

Advantages. The advantages of using computers in language testing fall into two categories: testing considerations and human considerations.

Among the *testing considerations*, it is important to realize that computers are much more accurate at scoring selected-response tests than human beings are. Similarly, computers are more accurate at reporting scores and can give immediate feedback in the form of a report of test scores, complete with a printout of basic testing statistics. In addition, IRT and computer-adaptive testing allow us to target the specific ability levels of individual students for more precise measurement. Moreover, the practice effect, studying for the test, and cheating are minimized by essentially having a different test for each student. Finally, diagnostic feedback can be provided very quickly on items answered incorrectly by each student.

Among the *human considerations*, it turns out that students like computers and even enjoy the testing process (Stevenson & Gross, 1991). This may partly be because the computer allows students to work at their own pace. Moreover, in computer-adaptive testing, it is likely that students will experience less frustration than on paper-and-pencil tests because they will be working on questions that are more-or-less at their own level of ability. It is also possible that students will not find a computer-assisted test as overwhelming as an equivalent paper-and-pencil test because the questions are presented one at a time rather than in a daunting booklet with hundreds of questions. Finally, as pointed out by Madsen, computer-adaptive tests are likely to take less time than traditional paper-and-pencil tests.

Potential problems. The use of computers in language testing is not without potential problems, however. The following two categories of concerns should be considered in setting up

any computer-assisted testing program: physical considerations and performance considerations.

Among the *physical considerations*, perhaps the availability equipment, or more accurately the lack of availability may be a problem. All of the computer-based testing issues discussed above can only be implemented if computer equipment and reliable sources of electricity are available. Even if reliable equipment can be found, another physical consideration on all computers today is screen capacity. Most computers have monitors that are only 80 characters in width and allow 25 lines. Thus the amount of material that can be presented on a computer screen is limited. This limit to the amount of material might be a problem, for instance, if a group of teachers decided to develop a reading test based on relatively long passages. In addition, the graphics capabilities of today's computers are limited, especially on cheaper machines. Thus tests involving fancy graphs or animation might not be feasible at the moment.

There are also a number of *performance considerations* that must be taken into account. First, the issue of presentation arises. The problem is that the presentation of a test on a computer may produce different results from those that would have been obtained if the test had been paper-and-pencil (Henning, 1991). Research indicates that there is little difference for math or verbal items presented on computer as compared with pencil-and-paper version (Green, 1988), but more research needs to be done on various item types. Second, on a computer, it is not particularly easy to review questions, change answers, or postpone answering a question until a later time (Green, 1988), all of which are possible on a paper-and-pencil test. Third, as computers become an increasingly prevalent element in language programs, the degree to which students are familiar with them may also become an issue. In other words, differences in the degree to which students are acquainted with the use of computers and/or typewriter keyboards may cause discrepancies in their performances on tests that are computer-assisted or computer-adaptive (Hicks, 1989; Henning, 1991). Computer anxiety, or the potential effects of debilitating computer anxiety on test performance, is another potential problem area (Henning, 1991).

Conclusion

It is important to remember that computers, though powerful and useful, are only tools and that these tools must be subservient to the teachers and to the curriculum goals of the entire program. If the computers become an end in themselves, or take on an overly important role in a program, it may become necessary to yank the control of the program back into the hands of the teachers and administrators. Brown (1992) discusses "the human considerations that must be accounted for in delivering the message for and to the clients" within the more general context of media and technology. The same set of issues is important to computer-based testing. As pointed out at the outset of this article, computers are becoming increasingly prevalent in the language teaching profession because they can make the teachers' jobs easier by increasing their productivity and efficiency. Hopefully, this article has provided ideas on how computers can be made more useful, at least in the area of language testing. If even one language teacher is coaxed into using some of the incredibly powerful tools available on computers, then this paper will have been a success.

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Computers in Applied Linguistics and Language Teaching: A CALL Handbook

Edited by Udo O. H. Jung,
Peter Lang Publishers, 1991.

Reviewed by Paul A. Cunningham
Rikkyo University

Introduction

It has taken a long time to evaluate the computer's role in education, and an even longer time to realize its potential in language teaching. In the United States, the computer's potential in education was being considered as early as the late 1940s, and by the 1960s, Computer Assisted Instruction (CAI) began to emerge as a recognized discipline. The term, Computer Assisted Language Learning (CALL), was coined in the mid-1980s and refers specifically to the use of the computer to teach and learn languages. The interest in using computers to assist learning arose due to the development of the computer and the desire to create more effective teaching methods.

Four very influential computer projects that began in the 1960s and ran through the 1970s had a major impact on computers and education: The Stanford Project, the PLATO Project, the Dartmouth Project (all in the United States), and the Essex Project in Great Britain (Ahmad et al., 1985, pp. 28-35). These projects explored a number of ways in which the computer could be used for learning and encouraged further investigation in this area. However, research findings leave a somewhat ambiguous understanding of the efficacy of computers and learning. A number of studies have shown that learning through the use of computers is more efficient than traditional methods and boosts student motivation. However, further research is required to describe and to measure the interaction between the computer and learner in order to pinpoint what it is about the computer that seems to embellish learning.

By the late 1970s, microcomputers had established themselves in the market place. They had infiltrated the schools and had made their way into many homes. Computer sales were being quoted in the millions. Computer manufacturers battled to control the burgeoning market. In the short history of computers in education, computer technology has improved tremendously, yet the lack of hardware and software standards remains a problem.

Competition between computer manufacturers for market share has forced them to develop hardware and software on separate platforms. This has resulted in both hardware and software incompatibility. For example, IBM computers and their MSDOS or OS/2 operating systems are incompatible with Macintosh computers and their operating system. UNIX-based computers are incompatible with both IBMs and Macintoshes, and so on. This territorial type of attitude has plagued the computer industry and has made it impossible to establish any one standard. More recently, there has been a greater effort made to cooperate and to share technology and the market. In 1991, for example, IBM and Apple signed an agreement to develop new hardware and a new operating system together. Furthermore, this operating system will be UNIX-like, which will broaden its appeal.

The Review

The first section of this article offers a brief overview of *Computers in Applied Linguistics and Language Teaching: A CALL Handbook*, edited by Udo O. H. Jung (1991). The second section is devoted to certain issues in the field, as highlighted through several of the articles contained in this book. The last section focuses on trends in CALL today, with an eye toward the future.

Overview

The book is divided into four sections: 1) Computer Basics, which is composed of seven

Paul A. Cunningham teaches EFL in the Department of General Education at Rikkyo University, where he is teaching two of his classes in a Macintosh Lab. He also teaches a workshop in computers and education in the MA Program in TESOL at Teachers College, Columbia University (Tokyo program).

articles on topics such as CALL software development, word processing, and Interactive Video; 2) Computer Technology in Applied Linguistics, which has nine articles on topics such as translation, lexicology and language testing; 3) Classroom Research and Language Learning, comprised of nine articles addressing such topics as the teaching of vocabulary, intensive reading and the role of simulations in language learning; and finally, 4) Country Surveys, which provide the reader with a report of the state of the art of CALL in eleven countries.

Any collection of articles contains a variety of styles and abilities, and this book is no exception. The articles are brief and relatively easy to understand for the somewhat initiated reader. However, what the book offers in terms of readability it lacks in depth, as most of the articles are introductory in nature and don't go into much detail. In this sense the book serves its purpose as a CALL handbook—that is to say, it is a springboard for further reading.

Many books are, at best, a couple of years behind by the time they are printed and distributed. In a field as dependent on rapidly changing technology as CALL, this up-to-date factor is perhaps twofold. Most of the articles in this book were written prior to 1987, during which time there have been a number of significant changes in technology. Computers have become smaller, more powerful, and cheaper. This means that computers cannot only do more, but are more affordable to schools and to individuals.

Computer costs in general have dropped as newer, faster and more powerful models come out. These changes have had a direct effect on software design and on how the computer can be used. Affordable RAM and HD space, for example, have made it easier for the computer to handle sound, that is to record and play back digitalized voice and music.

A great irony in CALL, as pointed out by Davies (p. 42), is that much educational software is still based on the Apple II™ and BBCb™ microcomputers even though these machines are severely outdated. (Both machines were widely promoted and distributed to schools in the early 1980s—the former in the United States, the latter in Britain.) With this in mind, Jung's book is somewhat immune from criticism in that there has not been a tremendous amount of development in CALLware in the time that it took this book to go to press.

Overall, the selection of articles is good (albeit European based). The Country Surveys section, perhaps the one most interesting for the novice to read, is sorely lacking in organization. The information given follows no pattern, making it difficult to compare what is happening in the eleven different countries included in the survey. To a lesser extent, there is some question about the selection of reviewers. In the survey of Great Britain, Wolff admits that he has a "rather sketchy picture of the state of CALL in Britain" (p. 316), and cautions the reader to see his report as "a collection of impressions gained during a short stay in Britain." Although he is clearly no newcomer to the field of CALL, one has to wonder why he was asked to report on the state of CALL in Britain when there are many respected British authorities in the field, most notably Higgins and Davies, both of whom contributed articles elsewhere in this book. Curiously enough there is no report on Germany, where both Wolff and Jung hold university positions. More curious still is that the book has no fewer than twenty-two contributors from Germany. Why couldn't any of them write a report on the state of affairs in their own country? The most conspicuous omission is that of the USA, the motherland of CALL. Jung acknowledges the absence of this report in a footnote found in the introduction (p. 17), citing reasons beyond the editor's control.

Many of the articles use examples that involve languages other than English, without translating them for the benefit of the reader. This seems to defeat the purpose of giving an example and in some cases makes it hard to follow the writer's point. One such case is found in Kelling's article "Foreign Language Learning With Computer Interactive Video" (p. 87), where he is making the point that encouraging responses from the computer are important, even when the student has given the wrong answer. For example, the correct answer to:

Wie steht der Dollarkurs heute?
may be
DM 1,85.
If the student should pick the option:
DM 4,00
the computer may respond by saying
So viel bekam man vor ein paar Jahren, aber heute nicht mehr. Heute ist der Dollar weniger wert.

This leaves the reader who is unfamiliar with German at a loss. In another article, "New Possibilities in Computer-Assisted Learning of Foreign Language Vocabulary Using the Apple Macintosh," Widding and Esser (pp. 265-278) give a number of extended examples in German and French—too long to cite here.

A helpful addition to the book would have been an index, making it possible to cross-reference information. This is one of the computer's greatest strengths, and you would expect to find a similar aid in a text dealing with computers. There is, however, a very helpful glossary of terms and a useful list of contributors and where they can be contacted at the end of the book.

In the preface, Jung humbly acknowledges that the English in this text might not be on par with Shakespeare, Pope and Shaw—that there were many nonnative contributors—and that any remaining mistakes should be forgiven. Yet the number of typos throughout the text was enough to be distracting.

Issues

One of CALL's most serious problems is the lack of software development. The bulk of CALLware was developed on machines more than ten years old—dinosaurs in today's computer world. Since technology changes so quickly, it is difficult for software developers to establish a platform from which to write. The lack of hardware and software standards has further complicated this problem. Glancing over the countries surveyed, one is surprised by the number of previously unheard of computers being used throughout Europe, and by the fact that few if any of them are compatible. By the mid-1980s, IBM computers (and IBM clones) had made substantial progress into the American and European markets, which acted to stabilize development to some extent. Yet there was a wide range of acquisition from Holland, boasting IBMs in all secondary schools by the year 1988 (p. 390), to Hungary, which couldn't afford the IBM machines (p. 327). Elsewhere in this issue, Knowles (1992) acknowledges the strength of the IBM market share, the number of software titles available for IBM machines and IBM's commitment to the market.

In a recent survey of computer use in the United States, *MacWorld* (1991, p. 165) reports that 72% of the computers used in grades K-12 are Apple IIs, followed by 42% for Macintoshes, and by 28% for IBMs or IBM clones. If these figures are accurate, it would imply that Apple computers have played the major role in computer education in the United States.

Many people neglect to realize the tremendous amount of time and money required to develop good CALLware (or any software). Because the market share is so divided, it is unprofitable for software developers to write CALL programs. This basically leaves this important task to teachers/computer enthusiasts, who have limited time, expertise and interest. In fact, in the survey of New Zealand, it seems that virtually all of the CALLware in this country has been written by one person, who holds a full-time university post (pp. 343-348). As Davies points out, "It is often suggested that the ideal software development team consists of three people: a supervisor, a programmer and a subject specialist" (p. 42). For many educational institutions, these resources are simply not available—whether human or financial. This helps to explain why there is a lingering dependence on CALLware developed in the early and mid 1980s. A case in point: In the autumn of 1990, Apple enabled the Macintosh LC (a computer in the sophisticated Macintosh line) to play the old Apple II software. This was done basically to keep a foot in education, which is where Apple started out. On one hand this was an exciting and long overdue addition to the Macintosh line, yet it also reminds us of the continuing dependency on that era of software!

Added to the instability of hardware and

software standards is the continuing question of what role the computer should play in education—and more specifically in language learning. Since the use of the computer is determined to a large extent by hardware and software development, it makes this issue all the more complicated. There is an interest in combining the special powers of the computer with those aspects of language that the computer can handle well. This has resulted in mostly text-based, text reconstruction, and gap-filling type exercises. Furthermore, the focus has been on grammar, especially on morphological and syntactic detail. Computers can easily cope with this "closed set" of language features, and evaluate and track students. Yet the very best intentions, in this case trying to use the computer to do what it can do best, are not without their drawbacks. Those drill-based, short-answer, "right or wrong" type of programs that abounded in the 1980s are still with us, and have defined how computers are being used—and how they will continue to be used until a better idea comes along. Davies (p. 42) notes that teachers often go with old-fashioned, gap-fillers because they are easy to use and easy to maintain. The availability of these programs has led to a consumption trend in favor of these kinds of programs at the expense of simulation and interactive programs that can be realized on today's computers. Yet there are teachers who are using the computer in new and innovative ways. Knowles (1992) proposes that interactive programs empower students to interact with the materials in several ways:

a. to hear a sentence again
b. to hear a translation or hint
c. to fast reverse/forward to previous/next question or task
d. to display text
e. to see a glossary entry for selected words in the text
f. to adjust the pace
g. to adjust the level or depth of the lesson

This type of interaction encourages students to go over a lesson many times, and enables them to take a different path each time because of the program's ability to respond to the students' input.

In his article "Translation and the Microcomputer," Farrington (pp. 124-125) points out the reluctance to deal with meaning. Referring to programs used to teach translation, he questions why most of the programs are L1→L2 rather than L2→L1, as one might expect. The answer is that it is easier to program L1→L2 because one needs to deal with only a limited set of grammatical features. Although L2→L1 programs would be more difficult to program, he and others elsewhere in the book point out that this can be accomplished by "keyword analysis," which serves as a guide by providing a sampling of appropriate responses that students are expected to read through and compare to their own responses In addition, the computer can be programmed to refuse a set of predicted mis-translations, but only those keyed in by the programmer/teacher. All input is labor intensive, and the wider the range, and the greater the complexity of the language, the less able the computer is to judge the student's response. As a result, the burden of evaluation is placed on the student. This calls to mind the older and more familiar debate on error correction in the Language Lab and the role that students should play in that process. However, since the students are translating into their own language, it is no longer necessary to focus on grammar. The focus can now shift to meaning.

Trends

There seems to be a move away from using the computer for drill and practice toward using it in simulations (e.g., building a city and managing it), as a stimulus for group discussions and activities, or as a tool for writing, databasing (p. 326). This is good news! If this trend continues, it will help bridge the gap between outdated CALLware and the computing muscle available today. There also seems to be a trend away from the emphasis once placed on programming (p. 338). This is due to two main factors: 1) the growing belief that being able to use a computer is more important than knowing how to program one. (How many drivers know how to fix their car—or even how it works?); and 2) there are more authoring

programs available now—programs which allow you to "assemble" programs with little or no programming knowledge. The advent of Multimedia in the late 1980s has also provided a new vision. Multimedia combines traditional text with graphics, animation, sound, video, and still photographs—and on machines that are now affordable. This technological advance will help to yank us away from the drab CALLware of the 1980s. Computers can now easily be interfaced with laserdiscs (and other audio-visual machines) to deliver high resolution pictures, stereophonic sound, digital recording ability, and other features, making it possible to create more authentic and interactive ways to communicate with the computer. Knowles (1992) speculates that Multimedia has the potential of creating a revolution in language teaching by redefining classes into smaller, more manageable groups where the teacher can be more effective facilitating activities that require face-to-face interaction, while the other students work individually or in small groups on a multimedia personal computer. These computers would include, or be hooked up to, a CD-ROM drive (a machine that can read compact disks) and might also be hooked up to a LaserDisc Player or other hardware enabling the student to interact with a variety of media.

I am convinced that computers will play an increasingly important role in language learning—and learning in general—as technology advances and drives prices down, as we become more familiar and more comfortable using computers, and as we devise more effective ways of using them.

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BOOK REVIEWS

Learning to Bow: An American Teacher in a Japanese School

Bruce Feiler
Ticknor & Fields, 1991

Reviewed by Stephen Gaies

It is hardly controversial to state that effective teaching of English as a foreign language depends on an awareness of and sensitivity to the setting in which one teaches. In the last few years, as international exchanges of English teaching professionals have taken place at unprecedented levels, the importance of insuring a fit between a particular sociocultural/educational setting and the teaching and learning designed for that setting, has become even clearer. *Learning to Bow* is, among other things, a powerful confirmation of this view; it is a sympathetic yet clearheaded and balanced description of one Westerner's efforts to understand and acculturate to Japan. This is a book that the ESOL professional can read on many different levels; each level provides informative and thought-provoking reading.

Personal accounts of a Westerner's introduction and acculturation to Japan have reinvigorated a literary category with which the writings of Lafcadio Hearn are most closely associated and of which, in recent years, Morley's *Pictures From the Water Trade* (1985) is perhaps the best known example. With the spate of recent publications of this type, subcategories have begun to emerge: accounts of sojourns in Japan of Westerners with no ethnic ties to Japan (e.g., Iyer, 1991; Meyer, 1988); insights into Japanese life and society by those who have settled in Japan and make up part of the ever-increasing expatriate community in Japan (e.g., Booth, 1985); and accounts written by individuals of Japanese ancestry (e.g., Field, 1991; Mura, 1991).

On one level, *Learning to Bow* can be read as a narrative of one teacher's experience in Japan. However much he attempts to consider larger issues concerning Japanese education and society, Feiler is primarily concerned with recounting his own experiences in a limited number of junior high schools. He does not claim to portray Japanese education systematically and comprehensively; for this approach to the description of education in Japan, there are several much-admired treatments (Passim, 1965; Rohlen, 1983; Simmons, 1990; White, 1987).

Thus, *Learning to Bow* is valuable as a participant's account of English language teaching in a particular setting, as a "thick description" of a teaching program: the activities that made up day-to-day teaching and learning, the characteristics of the people involved in these activities, the nature of the community in which the program came to life (see, for example, Guba & Lincoln, 1981).

On another level, however, the book is valuable for its insights into the use of native English-speaking assistant teachers, an innovation best known and almost synonymous

Stephen Gaies currently teaches at the University of Northern Iowa. He was a visiting professor at Temple University Japan in Tokyo from 1990 to 1991. He is a former editor of the TESOL Quarterly.

with the Japan Exchange Teaching, or JET Program. Even though *Learning to Bow* does not aim to offer an assessment of the contribution of AETs to English education, Feiler's experiences and adjustment to Japan are worth considering in any discussion of the use of native-speaking assistant teachers.

In certain respects, the author was very typical of AETs; but in at least one important respect, he was quite atypical. What is a "typical" AET? There are several ways to answer this question. The simplest perhaps would be to say that there is no "typical" AET. They come from different countries and range in age from their early 20's to mid 30's, have had different amounts and kinds of previous experience living overseas, and become AETs for a variety of reasons. Some have previous teaching experience, although very few hold teaching credentials (see Leedham, 1991).

In addition, most AETs do not speak Japanese—indeed, as Leedham (1991) points out, "while British AETs undergo an intensive fourteen hour course of Japanese language instruction, other nationalities may have had no previous exposure to Japanese" (p. 21). It is in this respect that Feiler is perhaps least typical; he was proficient in Japanese when he arrived in Japan and could interact with non-English-speaking Japanese from the beginning. Although a great deal of the controversy surrounding AETs and their effectiveness in promoting change centers—quite legitimately—on their lack of professional training (and thus their inability to function as professional equals with the Japanese teachers of English with whom they work), relatively less attention has been given to the language handicap with which most AETs must contend at the very time they must acculturate to the ends and means of Japanese education. Feiler was not handicapped in this respect, and throughout the book, we can identify numerous experiences that enriched his stay in Japan that would have been very difficult or impossible for a non-Japanese-speaking AET to have.

This problem is not unique to Japan or to the JET Program; *Learning to Bow* is, among other things, a reminder of the value, for expatriate teachers anywhere, of proficiency in the language of the community: if not as a pedagogical necessity, then certainly as a key tool in cultural adjustment.

Learning to Bow, however, is not only about the experience of a single native speaker's experience in Japanese schools; when Feiler describes the teaching and learning of English in Japan, he looks for patterns that reveal themselves in the educational system as a whole. Feiler's observations will, I suspect, ring true to those who are already familiar with English education in Japan; for those who are not—and the book is clearly aimed at this latter audience—the author's insights are concise and effective. For example, in his description of a *juku*, or cram school, in which students prepare for the annual university entrance examinations, Feiler provides the familiar image of students struggling to master, under the close supervision of their instructor, the "officially sanctioned antonyms" (p. 184) for some of the 5000 words for which students are held responsible on most university entrance exams. In the same chapter, however, Feiler explains why the *juku* became and continues to be so prominent a feature of the Japanese educational landscape—a phenomenon that, as Feiler notes, was given even greater impetus as a result of Occupation reforms aimed at equalizing and democratizing access to education.

The complex issue of Japan's relationship with and view of outsiders—and in the case of returnees, those Japanese who have lived outside of Japan for an extended period—is explored at several points in the book, most memorably perhaps in Feiler's comparison of an archetype of American folklore, Paul Bunyan, with the Japanese folk hero *Momotaro*, the Peach Boy. The popularity of the Peach Boy (including his use in wartime propaganda) reflects what Feiler (and many others before him) have identified as a basic response in many Japanese: a fear of and defensive attitude toward foreigners. This, claims Feiler, is what makes the current emphasis on *kokusaika*, or internationalization, so difficult to achieve,

both in English education and in other domains. And nowhere else is the scope of the problem so visibly and so poignantly illustrated as it is in the treatment many school-age returnees have received when they attempt to reintegrate into the Japanese school system (see, for example, Sato, 1982; White, 1988).

Finally, *Learning to Bow* offers incisive insights into an area in which misconceptions abound: the ends and means of the Japanese educational system in general. Much has been made in the popular press in recent years about the relative achievement, particularly in the areas of science and mathematics, of Japanese students and students in other countries, including the United States. The preoccupation that many Western educators appear to have with academic achievement often causes them to overlook other outcomes that Japanese education aims to produce. *Learning to Bow* recounts Feiler's discovery of the importance attached by Japanese schools to socialization and moral education. Take, for example, *shitsuke* (discipline), which one of Feiler's fellow teachers calls "the heart of our schools" (p. 40). When Feiler asks whether the inspirational signs that hang all over the school really teach students how to behave, his colleague relies:

> "I think they are important. ... I can remember walking into my classroom when I was in a bad mood and being reminded that a bright greeting and a healthy attitude are important. I would be lifted from my bad feeling. If my students do not give a bright greeting in the morning, I don't believe they are showing their true feelings. Everyone should be able to give a cheerful 'hello' all the time."
>
> "But what if they aren't in a good mood?"
>
> "They must learn to persevere. If they were one person on an island, they could always say what they think. But they are not. We all must live with other people. This is our Japanese custom." (p. 40)

The difficulties and dangers of attempting to transplant language-teaching methodologies into settings other than those for which they were originally developed have been the subject of considerable attention (see, for example, Burnaby & Sun, 1988). There is a considerable danger that newcomers to Japan, including teachers of English, will underestimate the profound differences in the values that underlie Japanese and Western education. Regardless of whether the value system at the heart of Japanese educational and other institutional life is the product of systemic or cultural factors (see Fallows, 1991), the pervasiveness of the values—and their influence on attempts to introduce innovations into English language teaching—must be appreciated.

Take, for example, what appears to be and is often portrayed as the relatively straightforward need to serve newly-stated goals of "teaching English for communication" and emphasizing "oral English" by introducing fluency activities into classrooms that have traditionally put a premium on accuracy. As an anecdote related by Feiler reveals, attention to formal accuracy-the existence of norms and the expectation that these norms will be rigorously adhered to—pervades Japanese life, both in and outside of the classroom.

Early in his stay, Feiler wrote a letter to some Japanese friends and gave it to the "office lady" to mail. Several days later, one of his closest Japanese colleagues came to Feiler with the letter and told him that since the envelope had not been prepared correctly, it could not be sent. The letter had been addressed correctly, but Feiler had neglected to include the character for the honorific *sama*. Not only did this oversight cause consternation among the staff in Feiler's office, but it was also noticed by the friends to whom Feiler had written. As they told him, "Mr. Bruce ... your boss was right [for intercepting the letter]. We always know when we get a letter from you, because you never address an envelope in the proper way. Form is very important, you know" (p. 250).

Envelopes, as Feiler learned, "are more than simple wrappers that protect a private letter and are later thrown away. As a school uniform defines a student or knickers a mountain hiker, an envelope actually becomes a part of the

message itself" (p. 251). To condemn an emphasis on accuracy as counterproductive to classroom language development c··ts against the grain not only of traditional language-teaching methodology in Japan, but more significantly, of beliefs and values that figure largely in the institutional culture in which English education takes place.

In the final chapter of his book, Feiler describes himself as "torn between respect and aversion" (p. 278) for the Japanese educational system. Feiler is no convert singing uncritically the praises of Japanese education; nor does he feel alienated, as a permanent outsider, from the system in which he taught. His narrative of his experiences as a teacher of English reflect the sensitivities and the qualities that underlie successful cross-cultural communication and exchanges. In short, it is valuable reading for anyone interested in understanding better the challenges and rewards of intercultural exchange.

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English Around the World: Sociolinguistic Perspectives

Jenny Cheshire, Editor. Cambridge University Press, 1991

Reviewed by Brian Paltridge

The volume *English Around the World*, edited by Jenny Cheshire, is a significant contribution to the literature on the use of English around the world. Approaching the subject from a sociolinguistic perspective, the collection of papers presented in this volume draw together an impressive range of insights into attitudes towards and variation in the use of English across the world.

The first section of the volume, written by the editor herself, introduces the theme of the volume, sociolinguistics and English across the world. Cheshire underlines, early in the volume, the complexity of undertaking sociolinguistic investigations in many of the contexts in which English is now used across the world and, in particular, in situations where English is just part of a much larger multilingual environment. She also highlights the contribution that sociolinguistic research can make to our understanding of the use of language across the world. Cheshire follows this introduction with an overview of the use of English in two major areas of English language use, the UK and the USA. The focus of this section of the volume, rather than to detail all the major research carried out in these two particular parts of the world is, rather, to present a back-

Brian Paltridge is a Senior Lecturer in Applied Linguistics in the Language Institute at the University Waikato in Hamilton, New Zealand.

ground to sociolinguistic research carried out elsewhere that may have been influenced by this research. Cheshire concentrates here, in particular, on the status of English, attitudes towards English, regional and sociolinguistic variation. She then details a number of approaches to the analysis of sociolinguistic variation. She also outlines criticisms that have been made of some of the research carried out as well as points to areas in which more critical attention could be applied.

The contents of the rest of the volume are divided into eleven geographical areas—Ireland, Canada, New Zealand, Australia, South Asia, Southeast Asia and Hong Kong, East Africa, Southern Africa, West Africa, the Caribbean and the Pacific. The focus of the volume, thus, provides descriptions of language use which fall largely within what Kachru (1989) describes as the "inner and outer circles" of English language use. That is, countries where English either represents the dominant cultural and linguistic base (the "inner circle") or countries in which English is used largely for "intranational" purposes (the "outer circle"). That is, countries where English is used for the purposes of internal communication by people of differing linguistic and ethnic backgrounds.

Each of these eleven sections commences with an overview written by an author with specialist knowledge of sociolinguistic variation in that part of the world. In each of these chapters, authors survey the contributions of sociolinguistic research carried out in that part of the world as well as point to research that is still needed. Each author, in turn, covers the status of English, language attitudes and sociolinguistic variation in their particular area. These overview chapters are then followed by case studies which provide detailed examples of sociolinguistic research carried out in the particular geographical area.

The first area dealt with in the volume, after the UK and the USA, is Ireland. John Harris commences his overview chapter with a brief overview of the historical and political background to English language use in Ireland. He then proceeds to examine standard and vernacular varieties of English in use in Ireland as well as discusses the relationship between English and the Irish language pointing to the fact that, although Irish is no longer the medium of everyday communication in the Republic of Ireland, attitudes towards Irish are still overwhelmingly positive. The case studies which follow focus on grammatical variation in urban and rural varieties of Hiberno (Irish) English, the use of the "after" variable in Dublin and social constraints on variation in Belfast English.

J. K. Chambers' overview chapter on the use of English in Canada, particularly in the attention it gives to regional variation in the use of English, prepares the ground for a number of detailed studies of the use of English in Newfoundland, Vancouver and Ottawa. These studies focus on phonological change in St John's English, sociophonic variation in Vancouver and social differentiation in Ottawa English.

The chapter on the use of English in New Zealand by Alan Bell and Janet Holmes gives an example of a country which, despite the actual diversity of its population, is still, predominantly, monolingual. Bell and Holmes discuss this situation in their section on English, Maori and minority languages in New Zealand before proceeding to review research into variation in New Zealand English and, in particular, regional, social, ethnic and gender variation. The case studies presented in this section of the volume focus on social constraints on the phonology of New Zealand English, "Maori English" and an investigation into the relationship between sporting language and male solidarity.

In the overview chapter on the use of English in Australia, Gregory Guy describes a situation similar to that of neighbouring New Zealand in that Australia, even with its wide range of indigenous and immigrant languages, is still largely dominated by English. The case studies presented in this section of the volume focus on differences in phonology in Australian English, variation in subject-verb agreement in Inner Sydney English and Australian Creole English.

The section of the volume on South Asia focuses primarily on research into the use of English in India and Sri Lanka, with some lesser discussion of the use of English in Bangladesh and Pakistan. The discussion of models of English continues an argument presented elsewhere in other volumes on the use of English across the world (e.g., Quirk & Widdowson 1985; Pride 1986). Thiru Kandiah, in this section, argues strongly against native/non-native distinctions, proposing a notion, "fulguration" (p. 281), to describe the new, self-contained systems that have emerged and which incorporate new elements, combinations and meanings other than those which derive from the original interacting languages. The case studies presented in this section of the volume investigate consonant cluster simplification in Indian English, patterns of language use in India and pragmatic aspects of language use in Bangalore.

The overview on Southeast Asia and Hong Kong focuses on language use in Indonesia, Malaysia, the Philippines, Singapore, Thailand and Hong Kong. Common themes found in studies on the use of English in Southeast Asia are highlighted such as the spread of English, the role and status of English, pedagogical issues and nativisation. In this chapter, Mary Tay points to a need to re-examine assumptions such as the relationship between native and non-native varieties of English, differences between stable adult varieties of English and genuine interlanguage and child language. She concludes her chapter by calling for "a more balanced view of methods used in sociolinguistic research ... which recognises the value not only of empirical and quantitative research but also the intuitions and observations of scholars native to that region" (p. 329). The case studies which follow examine stylistic shift in the English of the Philippine print media, variation in Malaysian English and social and linguistic constraints on grammatical variation in Singapore English.

The chapters which follow look at three different geographical areas in Africa. That is, East Africa, Southern Africa and West Africa. As well as the overview articles, case studies are presented on language use in Kenya, Tanzania, South Africa, Zambia, Nigeria and Liberia. Each of these regions represent extremely complex multilingual situations in which English shares a place with many indigenous languages as well as immigrant and colonial languages. The case studies presented in these sections provide detailed examples of this very complex sociolinguistic environment. The different attitudes to English across the borders of neighbouring countries revealed here highlight the importance of examining social, cultural and social psychological factors in studies into the use of English across the world.

The final chapters of the volume are devoted to the Caribbean and the Pacific, two more highly complex sociolinguistic situations. Case studies in these sections look at language use in Guyana, Belize, Papua New Guinea, Hawaii and Fiji. The overview chapters which precede the case studies point to the range of sociolinguistic and cultural diversities found within each of these two areas.

English Around the World, then, through the range and detail of its coverage, provides both breadth and depth of insight into the use of English across the world. A complementary volume to this collection of papers would be one which focuses on the equally complex issue of the use of English in international communication contexts which, apart from describing the problems inherent in such situations, as have done a number of volumes already, provides sociolinguistic perspectives on this increasingly important area of English language use around the world.

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English across cultures, cultures across English: A reader in cross-cultural communication.

Edited by Ofelia García & Ricardo Otheguy.
Mouton de Gruyter, 1989.

Reviewed by Mark Sawyer

English across cultures, cultures across English is an eclectic and generally nontechnical collection of 22 original articles by scholars representing 15 different nationalities. The papers all contribute toward sorting out the complex issues associated with the global spread of English, issues which fewer and fewer individuals worldwide, much less their societies, remain unaffected by. The volume's editors, Ofelia García and Ricardo Otheguy, have attempted to organize the articles to represent the four main perspectives traditionally characterizing the study of language in society: 1) cultural—using methodologies from pragmatics, conversational analysis, and the ethnography of speaking; 2) political—the orientation of much of the work in the sociology of language; 3) linguistic—focusing on sociolinguistic variation; and 4) and psychological—based on work in social psychology. This organization also provides a nice opportunity for nonspecialist readers to familiarize themselves with the main traditions of sociolinguistic research, although a number of the articles clearly defy the categorizations they have been assigned by the editors.

The unifying theme of *English across cultures, cultures across English is* that English both promotes and impedes interethnic and cross-cultural communication. The global accessibility of English has created a false sense of mutual intelligibility. While divergent sociocultural realities of speaker and hearer often render messages uninterpretable, hearers tend to feel nevertheless compelled, based on the common linguistic code of English, to infer meanings as best they can. In this way, the illusion of communication is easily created, so that by the time some sort of communication breakdown manifests itself, the original source of miscommunication has become very difficult to identify. On the other hand, when certain crucial aspects of interlocutors' cultural or conceptual systems converge, communication often takes place with surprising effectiveness despite linguistic differences. As the use of English for cross-cultural and interethnic communication continues to expand, it becomes increasingly important to maximize the opportunities for successful communication while minimizing the dangers of misunderstanding. Each article in *English across cultures, cultures across English* offers insights toward one or both of these goals.

All four perspectives represented in the book are necessary for a complete analysis of any given language situation, but the articles written from a cultural orientation (Part One of the book) are perhaps of the most immediate relevance for language teachers. Within the general area of cultural considerations, two sources of potential misunderstanding are especially noteworthy: those pertaining to language in use, and those surrounding language in education. The papers by Platt, Verschueren, and Williams deal with the former, and those by Saville-Troike and Kleifgen, Cazden, and Malcolm deal with the latter.

John Platt's article, "Some types of communicative strategies across cultures: Sense and sensitivity," focuses on six areas of "sensitivity" in communication, any of which can lead to a speaker being misinterpreted as insincere, rude, overly inquisitive, or indifferent. The first two concern engaging and disengaging in a conversation. The other four are the speech acts requesting, agreeing to a request, and responding positively and negatively to an offer or invitation. Platt's point that the establishing of interpersonal relationships is often as important as the transmitting of the message has important implications for the language classroom. Although it is not clear why he focused only on the six areas he did, to the

Mark Sawyer is a doctoral candidate in Second Language Acquisition at the University of Hawai'i at Manoa, and a degree associate at the East-West Center's Institute of Culture and Communication.

exclusion to other important speech acts such as thanking, apologizing, complimenting, and complaining, Platt's areas of sensitivity do provide a good starting point for teachers to probe their students' current competence and from there work toward improving it. Fortunately for language teachers in Japan, there is a rapidly growing literature on the pragmatics of Japanese and the interlanguage pragmatics of Japanese learners of English, most of which is cited in the recent bibliography by Yoshinaga, Maeshiba, and Takahashi (1991). For language teachers interested in learning more about pragmatics, the survey article by Kasper and Dahl (1991) is an excellent place to start.

Verschueren's "English as object and medium of (mis)understanding," as the parentheses imply, tries to provide a balanced view of the role English has assumed in cross-cultural communication. In contrast to Platt's interpersonal orientation, Verschueren focuses on the international level, with examples ranging from Belgian student attitudes toward Jesse Jackson (formed in part by an English-language Swedish newsreel) to infelicitous reportage in *The New York Times* on the contrasting behavior of Nikita Krushchev and Dwight Eisenhower at their 1960 summit meeting. In the former example, Vershueren details how the Belgian students, despite their high level of English proficiency, were totally unprepared to accurately evaluate speech events taking place in an English-speaking community; in the latter, he shows how the medium of English misportrays Khrushchev's behavior because readers interpret the "objective" newspaper report through the filter of their own English-speaking community's interactional norms. Verschueren's conclusions are themselves highly interpretative, but to the extent that they are plausible have important implications for international communication. The continuing series of embarrassing misunderstandings between leaders in Japan and the United States lends added credence to Verschueren's lively arguments.

The next paper, R.T. William's "The (mis)identification of regional and national accents of English: Pragmatic, cognitive, and social aspects," is a solid examination of how speakers are assigned to a particular group or category on the basis of accent. Although accent is a phenomenon that language teachers tend to wish would just go away, since it is so hard to do anything about, perhaps students' and teachers' mis-identifications of accent and misunderstandings about accent are not impervious to instruction. If we accept Williams' statement that "accent identification as a form of cross-cultural communication is a fact of social living," then the issue of accent is certainly worthy of our attention.

The first of the three papers dealing with classroom language use and learning, Muriel Saville-Troike and Jo Anne Kleifgen's "Culture and language in classroom communication," argues that "shared cultural knowledge is both the necessary and often sufficient condition for communication to succeed," whereas a shared linguistic code is neither necessary nor sufficient. They base this claim on their observations of thirty limited English speaking children in an elementary school located near the University of Illinois. The authors classify communicative interaction into three hierarchically interrelated levels: *codes* (verbal and nonverbal linguistic features); *discourse structures* (the organization of features in relation to type of interaction and communicative intent); and *scripts* (the extralinguistic knowledge and expectations that are brought to a specific situation or event). On the level of *codes*, Saville-Troike & Kleifgen present numerous examples to illustrate that although lexicon and orthography cause some problems, deviant phonology rarely leads to communicative breakdowns and grammar never does. Although their lack of concern with grammar and phonology does not seem justified (even in relation to their own examples), their attempt to redirect attention to the relatively neglected areas of lexicon and orthography is laudable.

Saville-Troike and Kleifgen's examples regarding *discourse structure* highlight the fact that the children in this sample arrive at the American elementary school with a recognition of the tripartite Initiation-Response-Feedback cycle that characterizes "teacher talk" in many cultures, and that this recognition is

instrumental in achieving successful classroom communication. However, the examples also reveal how reliance on conventional classroom discourse structure can allow communication gaps to be glossed over rather than attended to. The reader interested in classroom discourse structure in Japan should refer to recent work in Fukuoka by Fred Anderson (e.g., 1991), in which he describes a four-part instructional sequence that he has found in Japanese elementary classrooms.

As for *scripts*, the level of knowledge putatively the most important for successful communication, the types of things Saville-Troike and Kleifgen have in mind are physical settings, roles and responsibilities, activity organization, curriculum sequence and content, and rules and expectations for behavior. Although mismatches between students and their teachers at this level do impede communication, few breakdowns actually occur in this study, due to the similarities in social class background, family educational level, and shared conventions for formal schooling that obtain between the teachers and pupils. Interestingly, most of the examples provided in the paper are interactions involving one or more Japanese or Korean pupils. While the authors are successful in illustrating the operation of the three levels of knowledge, the conclusions they draw are unjustified without a much more rigorous definition of communication breakdowns, valid measures of success, and more information about the children and their families. Saville-Troike and Kleifgen's account would also run into trouble accounting for the limited success with English that is often documented at even the top Japanese universities, where many of the same background characteristics that the authors discuss are held in common between the Japanese students and their expatriate instructors. The answer probably does have more to do with scripts than with the linguistic code itself, but this article gives little further direction in pinpointing it.

Courtney Cazden's "English for academic purposes: A hidden curriculum in ways of speaking" is a very timely article for language teachers who teach some form of academic English. Her proposed solution to the problem she depicts, however, will not be easy to implement. The problem is that student language is evaluated in terms of its form as well as its content. Cazden does not refer specifically to language classes, but of course when the object of study is the language, the problem becomes even more complex. The evaluation of ways of speaking is problematic because the criteria that teachers apply to academic language use are often unexamined and arbitrary. There is no way for the students to understand the criteria because the teacher may not understand them herself. Cazden advises teachers to make their expectations explicit to students (which should be easy enough), but then also to explain the intellectual, situational, or political justifications for those expectations. She advocates making a distinction (borrowed from Labov) between "pretension and precision."

Cazden's solution may run into difficulties with groups of language students who have a propensity for and comfort with memorizing formulas for language use. In addition to the potential problem of running into teachers in the future who still evaluate according to their own idiosyncratic notions of proper conventions, students my find that too much background and justification is more of a burden than an aid to learning. Nevertheless, students' frequent misuse of (for them) formulaic language when applied to slightly different contexts suggests that there is no substitute for an understanding of the rationale for choices in language use. The teacher's most immediate tasks are to get the students favorably disposed to analyzing language use more deeply, and then not to overdo discussions about language use at the expense of the language use itself.

The last article dealing with classroom language is that by Ian Malcolm, "Invisible culture in the classroom: Minority pupils and the principle of adaptation." Although he writes about children, in a variety of heterogeneous societies, with most of his examples coming from Australian Aboriginal classrooms, Malcolm nevertheless provides valuable ideas that can be used even by teachers with homogeneous groups of adults. The paper starts with the observation that diverse minority groups from various parts of the world employ similar

strategies of communication avoidance and modification in classrooms. This observation should also apply to majority groups of students when the teacher is from a group that is in some way perceived to be dominant. Malcolm argues that these classroom interactional behaviors stem not so much from cultural background, as from features of the structure of the communicative situation. He explains and presents evidence supporting the concepts of *participation structure, patterns of organization, balance of rights,* and *cultural congruence* as being relevant for understanding and overcoming problems caused by classroom *invisible culture.* Malcolm argues that among the three principles that have been proposed to explain the deviations of minority students' behavior—deficiency, difference, and adaptation—the last one, adaptation is most likely to shed the most light on the cross-cultural classroom.

Section Two, dealing ostensibly with macro-level sociolinguistic issues, begins with Keith Chick's "Intercultural miscommunication as a source of friction in the workplace and in educational settings in South Africa." Especially instructive in Chick's article is the difficult position that South African cross-cultural communication researchers have found themselves in. Although their research could be useful in reducing prejudice and stereotyping, its potential for abuse (i.e., to be used as an excuse for segregation and discrimination) and its potential to divert attention away from the need for structural change, have resulted in its being viewed with suspicion. The potential dangers of poorly done cross-cultural research and/or inappropriate applications should be constantly kept in mind by researchers, not only in volatile settings like South Africa but also in settings where the effects are likely to be more subtle.

In "Socio-political influence on cultural identity in Canada Implications for cross-cultural communication in English," David Piper explores the effects of Canada's Official Languages Policy, going beyond the dominant Francophone and Anglophone groups to a consideration of the policy's impact on the generally neglected native peoples and immigrants. Chitra Fernando's "English as problem and resource in Sri Lankan Universities" points out some of the consequences of English-medium university-level instruction in Sri Lanka, one of which is the tendency for graduates to become consumers of knowledge rather than researchers. She asserts that these consequences are applicable to other Third World countries. "They speak English, don't they?" by Judith Kearins, describes common misunderstandings between Australian teachers and Aboriginal students, arguing that these misunderstandings could be alleviated by teacher familiarity with Aboriginal child-rearing practices.

Section Three deals primarily with linguistic features of varieties of English. John Algeo, in "British-American lexical differences: A typology of interdialectical variation," warns against the "parallel list" approach to comparing dialects, and gives a basic framework for a more principled approach to explicating lexical differences between dialects. Pauline Christie's "Questions of standards and intra-regional differences in Caribbean examinations," highlights the problem of establishing a new "standard" language once the traditional (British in this case) model has been abandoned. William Stewart's "Structural mimicry in decreolization and its effect on pseudo-comprehension" is one of the book's more technical articles, dealing with the complexities and undesirable effects of a creole language (Gullah, a form of Black English spoken in certain parts of South Carolina and Georgia) decreolizing, or becoming more like the English of the wider community.

In "Cultural congruence and conflict in the acquisition of formulae in a second language," Koenraad Kuiper and Daphne Tan Gek Lin argue that many Singaporeans who use both Hokkien and English are not bicultural, because their English use is really Hokkien with English-like words and syntax. Although their case, based on their use of formulae in English apparently back-translated from Hokkien, seems somewhat overstated, their examples do document an interesting phenomenon of pragmatic transfer.

"Dialectology in our time? The English of the Cajuns," by J.L Dillard and Shirley Rivers,

is thin as a research paper but is interesting in its drawing attention to the French-influenced English of the Cajun people of Louisiana. Paul Mbangwana's "Flexibility in lexical usage in Cameroon English," describes the wide repertoire of vocabulary usage that young Cameroonians have developed in response to the competing influences of French, American and British English, Pidgin English, and indigenous languages. In the last article in this section, "Cultures in conflict: Varieties of English in Northern Ireland," Loreto Todd elaborates on how working-class people in Northern Ireland are able to identify their interlocutors' racial and religious backgrounds from their varieties of English.

The last section of the book deals mostly with the identity constraints involved in the use of English by speakers from various cultural backgrounds. Viv Edwards, in "Patois and the politics of protest: Black English in British classrooms," shows how Patois (the distinctively Black speech spoken by West Indian immigrants in England) still plays an important role in the linguistic repertoires of British-born Blacks regardless of their fluency in standard British English. British teachers' inability to fully understand the nature and implications of their students' Patois use plays a role in the continuing educational under-performance of black children in Britain, according to Edwards. In the next article, "Code-switching in narrative performance: A Puerto Rican speech community in New York," Celia Alvarez finds, contrary to previous studies done in the same community, that choice of language and position of switch points have particular meanings in Spanish/English code-switched stories. Joyce Penfield's "Social and linguistic parameters of prosody in Chicano English" describes how stress and intonation in the English of Mexican/Americans differs from that of their Anglo counterparts, and how the differences can lead to an awkward lack of synchrony and/or misperception of communicative intent. Furthermore, efforts at repair can aggravate the misperception, as when Chicano English speakers try to communicate emphasis with a prosody which Anglo-Americans take to signal lack of confidence. The article most tenuously categorized in this volume is A.M. Kinloch and Walter Avis' "Central Canadian English and Received Standard English: A comparison of pronunciation," which starts out briefly relating some anecdotes about British English speakers' attitudes toward Canadian English, but then transforms into a detailed linguistic comparison of vowel systems in the two varieties of English. The book concludes with the paper "Indian literature in English," by R.R. Mehrotra, in which the author gives a highly interpretative survey of many aspects of English-medium literature by Indian authors. Mehrotra argues that various distinctive characteristics of Indian English literature can be accounted for by the complexity of the material to be communicated interacting with the writer's awareness of the foreign reader's possible ignorance of the intended cultural nuances.

Few readers are likely be interested in every article in *English across cultures, cultures across English*, or even enough of the articles to justify paying the $118 it costs to own the book. However, the volume is very rich in new information and in the variety of approaches represented for the investigation of cross-cultural and inter ethnic communication through English. Although the conclusions of the authors sometimes exceed the limits of what their data seem to warrant, they do at least present data, allowing the readers to evaluate the conclusions themselves, and also to imagine refinements in the methodologies when limitations are perceived. Although the papers often do not all fit their categories exactly, the attempt to arrange cross-cultural communication research into a coherent framework of perspectives may prove useful to future researchers, who will be held increasingly accountable to previous research findings in their areas of specialty.

Another useful feature of the book is that each article is preceded by a short abstract, so that the reader can decide quickly whether it will be relevant to her interests. A drawback for serious readers, however, is that the references for all the articles are mixed together at the end of the book, so that it is becomes more of an effort to keep track of the literature that the researcher is using to motivate the study.

It is regrettable that despite the worldwide scope of the articles in the book, East and Southeast Asia are represented only by Kuiper & Lin's article about Singaporean English. Readers especially interested in these regions (but not only these readers) will also want to take a look at other recent edited volumes in this area, such as Cheshire's (1991) *English around the world: Sociolinguistic perspectives*, and Kachru's (1992) *The other tongue: English across cultures* (2nd Edition). Cheshire's book, organized strictly according to geography, includes articles focusing on the Malaysia, Singapore, and the Philippines, and Kachru's book features articles dealing with Chinese English and English in Japanese communicative strategies. Smith's (1987) earlier edited volume *Discourse across cultures* also contains papers specifically relevant to English use in China and Japan.

Although all the volumes cited above have their shortcomings, these shortcomings reflect the fact that cross-cultural communication is still struggling to become of rigorous field of study. All of the books make major contributions toward solidifying the field, with *English across cultures, cultures across English* being perhaps the most ambitious to date.

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Business Objectives

Vicki Hollett
Oxford University Press, 1991

Reviewed by Laurie Tellis

Among the many business English texts available, *Business Objectives*, written by Vicki Hollett and published by Oxford University Press, stands out. The first thing one notices is the sheer, colorful variety in its pages. The book is filled with "authentic materials from real companies"—graphs, charts, photos, advertisements, and so on—apt to appeal to the adult learner of business English.

Although the book is labelled "Lower Intermediate," many of the activities seem suitable for a wide range of students. While the more basic grammar work might be passed over, many of *Business Objectives*' pair information gaps, group discussions, and role-plays could easily be adapted for higher levels.

The students' book is organized into sixteen graded units; there is no continuous storyline, however, so teachers may select specific units to use with their classes. The book includes topics ranging from technical to financial, and covers key functional areas such as using the telephone, holding meetings, giving presentations, and socializing.

Each unit, as the title of the book suggests, clearly states an objective. These can be fairly simple, for example, the objective for Unit 4, Product Description, is "to describe a product or service." Each objective is then expounded with a list of tasks; for Unit 4, these are:

—to describe things and events using adjectives
—to exchange information on size and dimension
—to make enquiries about transporting a product
—to give an effective description by paraphrasing
—to make an informal product presentation.

Laurie Tellis is the Business Program supervisor at the Language Institute of Japan.

The rest of the unit is divided into three sections: presentation, language work, and skills work. The presentation section is generally a set of listening exercises designed to introduce much of the relevant language; the language work section provides controlled grammar practice; and the skills work section provides interesting, challenging activities to practice the four skills. Although each unit follows the same basic format, the variety of exercises in the book keep it from becoming a bore.

Presentation sections usually consist of two types of listening tasks. The first is a 'gist listening' exercise in which students need to listen for the main ideas of the text. This is followed by a 'language listening' task, in which students are asked to listen for specific language points. The combination of these exercises at the beginning of each unit, sometimes enhanced with brief speaking or vocabulary activities, serve as a solid foundation for the rest of the unit.

The language work sections provide plenty of practice with new grammatical structures. Frequent pair and group work activities maximize oral communication, and help to personalize the material. Some language work exercises have students learn to help themselves. In a unit on telephoning, for example, students determine what to say if they:

> can't hear the other person;
> want the other person to repeat something;
> want the other person to speak more slowly;
> want the other person to spell a word;
> want to be transferred to another department.

The brief grammar explanations in the language work sections are supplemented by the comprehensive grammar summary at the back of the book. This summary is an excellent reference guide for students to consult on their own, perhaps to review what was covered in class.

Some of the activities in the skills work sections are noteworthy as well. One creative example is a pair-work crossword puzzle where partners give each other the clues orally by paraphrasing the answers: "17 down is a kind of machine that can do work instead of people." (Answer: robot.) Another unit has students listen to a 'radio broadcast' of the business news.

Other skills work exercises attempt to heighten awareness of cross-cultural issues. A reading exercise in one unit tests students' knowledge of business and social customs around the world; another asks students to suggest why certain products were unsuccessful in particular international markets. For example:

> "An American golf ball manufacturer launched its products in Japan packed in boxes of four. It had to change the pack size."

The answers to these, which students are then asked to match to the corresponding problems, depend on a knowledge of the target market culture:

> "In Japanese the word for 'four' sounds like the word for 'death'. Things don't sell well packed in fours."

The exercise is interesting and fun to do, even if learners start with very limited cross-cultural knowledge.

An element of internationalism is present throughout *Business Objectives*. In addition to its multi-cultural content, the students' book consistenly provides both American and British English structures. The cassette tape is comprised of a variety of native and non-native speakers, exposing learners to many accents.

Business Objectives also includes a teachers' book, which is about as dry and dull as the students' book is colorful and exciting. This thin volume contains answer keys for all the exercises, brief teaching notes, and tapescripts. The teaching notes are quite basic, e.g. "Get the students to change partners periodically," "Pause the cassette as necessary" and so on. The optional activities are unimpressive, but then the students' book hardly needs supplementation.

The teachers' book aside, *Business Objectives* is extremely interesting and useful for the business English classroom. As either a course text used from start to finish, or as a resource used only periodically, the book is an excellent tool for helping business English learners meet their own objectives.

Finding Out

David Paul
Heinemann, 1991.

Reviewed by Aldona Shumway

Finding Out is a six-stage textbook series designed to introduce phonics to elementary school students. The series consists of a class book, home book, teacher's book, flashcards and cassette for each level. The book is based on a pedagogical theory called "The Questioning Approach" where children are encouraged to ask questions rather than simply repeat statements like "It's a book." Following a four month "trial run" with first and second graders at LIOJ we chose *Finding Out 1* as a textbook for the Spring 1992 semester.

Finding Out is well-organized and easy to use. The teacher's book is clear and provides detailed lesson plans for each chapter. Illustrations are eye-catching and students can readily understand what they are to do. The success of activities varied with different classes. My group, for example, detested handwriting practice whereas other classes really enjoyed it. The maze activities were universally confusing. However, all kids loved the car race game and the matching worksheets.

While testing out the series we were without the flashcards and textbooks. To compensate, we enlarged pictures from the book, using them as the flashcards would be in class. Although *Finding Out* provides "sample" words (i: igloo, e: egg) our students enjoyed creating their own examples which they often remembered more readily than words from the book.

Although *Finding Out 1* is an excellent way to introduce phonics to children, the "real language" it provides would be an insufficient base on which to teach English. "Be" is the only verb used in Finding Out 1 and colors aren't introduced until Finding Out 2. We found that, in general, half a period with Finding Out was sufficient.

The class book serves, in general, to introduce or explain games that will be played in class. For that reason, we found the class book to be superfluous. The dictations which it includes we simply had children complete on a separate sheet of paper where they could then "read" what they had written and even draw a picture if they finished early.

What follows is a sample "follow-up" lesson from Unit 3 of *Finding Out 1*. The previously learned letters and sounds (a-apple) are quickly reviewed and then students play the "Slam Game" which they first learned in Unit 1. Here students slap the letter card which corresponds to the word which the teacher or another student calls out (e.g., eh-elephant. Students slap the "e" card)

This is followed by a counting ball toss where students count to twelve as a ball is thrown (or passed in wild classes!) from student to student. (We have also found this to be a fun way to review the ABCs.) Another activity, the "a or an" game is then played to help students inductively learn the rules for use of "a" vs. "an."

"Combining questions," a personal information question chain drill is next. The author suggests throwing a ball; our students also enjoy asking down a line in two teams where the first team to finish squats. The "car race" which follows is a fun way for students to practice the vocabulary again. Letter cards are laid out in the shape of a race track along which students advance in team "cars." This can be done on the blackboard with magnetized cars if cards are not available. A first letter dictation follows and the class ends with homework preparation.

The variety of activities and their game-like feel really appeals to children. Varying levels can be accommodated within most activities

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Aldona Shumway is an MAT candidate from SIT. She is an instructor at LIOJ and an Associate Editor of Cross Currents.

with faster students beginning to help slower ones. As some faster students begin to understand phonics, they can start to spell out whole words during the dictations. In short, there are ways to keep all students involved with *Finding Out*.

For those new to teaching children, *Finding Out*'s Teacher's Book is an excellent resource. Children are taken seriously and teachers are encouraged to enjoy lessons with them. Many activities are included and recycled throughout the course. Some photocopiable supplementary materials are included in the back of the Teacher's Book. More experienced teachers will certainly find their own ways to expand on the lessons provided. For everyone looking for a text to introduce phonics to young children, *Finding Out* is a great way to go.

Flying Colours I and *II*

Judy Garton-Sprenger & Simon Greenall
Heinemann, 1990.

Reviewed by Berta Faber

Flying Colours I and *II*, EFL textbooks by Judy Garton-Sprenger and Simon Greenall, became available in 1991. The series consists of a text, classroom cassette, student's cassette, teacher's book and a video. The student texts are organized into six units, with 5 lessons in each unit. Each unit includes a "Britain in View" lesson. (For teachers who have little knowledge of Great Britain the "Britain in View" lesson in each unit may be awkward to use.)Teachers can quickly locate the topic, structure and communicative aims of each unit on the reference map.

Flying Colours I and *II* were test piloted at the International House Language Centre in Palermo, Italy. Classes met twice a week for one and a half hours. *Flying Colours I* was tested with both complete and false beginners. This review focuses on the experiences of the International House staff who taught with the *Flying Colours* series.

Perceived Strengths

Flying Colours' illustrations are theatrical, up-to-date and eye-catching. Texts are interesting and motivating. Language follows a logical progression and increases reasonably in complexity. Although there is a great deal of vocabulary, it is systematically reinforced in later lessons. Materials for classroom listening activities are authentic and semi-authentic. Student cassettes could be used at home by students and are fairly self-explanatory. They were useful for weaker students and for those who missed a few lessons. Speaking activities are controlled and semi-controlled. Pronunciation activities are included throughout the book. The video fits in with the syllabus. A fair amount of writing practice is included. Models for writing are also used (e.g., postcard writing).

In *Flying Colours*, material is frequently reviewed. However, in class some extra revision was still needed, especially for level 2. The "learner training aspect" of the book started off good habits from the beginning and reduced student dependency on teachers.

Perceived Weaknesses

Grammar is mainly taught inductively, which some teachers found difficult at a beginning level. There is a lack of supplementary grammar exercises. The third person singular is introduced too late.

Timing could be troublesome. Units 1-3, for

Berta Faber is an instructor in the Community Program at LIOJ.

example, took approximately 2 hours each to complete whereas Units 3-6 took 2-3 hours to complete. Teachers felt that they were either rushing to finish a lesson or having to supplement. Appropriate supplementary material was not always readily available.

The Learner Training Aspect (level 2), which many teachers liked, was difficult for some students with traditional language learning experiences (i.e., school). These students found it hard to be responsible for their own learning.

A few lessons expect students to absorb too much vocabulary. Unit 5.21, for example, includes body parts vocabulary, illnesses, a revision of making, accepting and refusing invitations, "can" and adverbs. Though this was good for highly-motivated students it was confusing for slower ones.

Overall, teachers and students found that *Flying Colours* contained a nice balance of skills and were pleased with the series, particularily in the complete beginner classes. Tasks were achievable. "The best book by far that I've used for complete beginners," stated June McGregor, Director of Studies. "It pushes the more competent students to excel, yet allows less able ones to feel that they can both cope and see progress."

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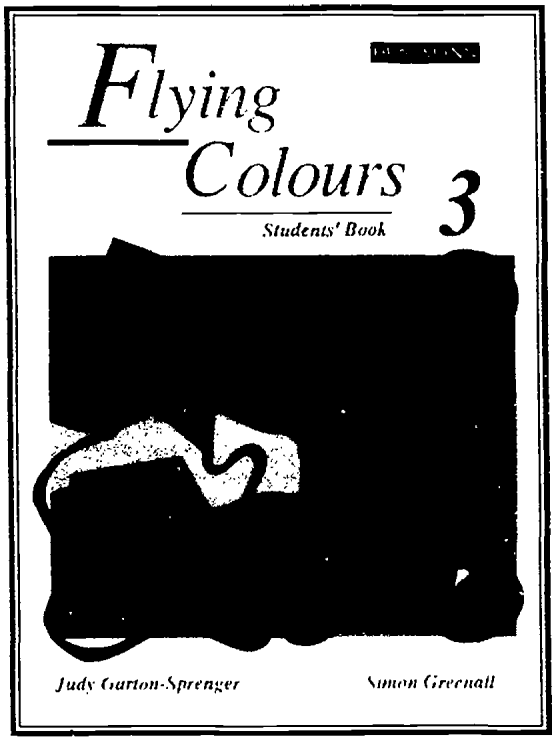

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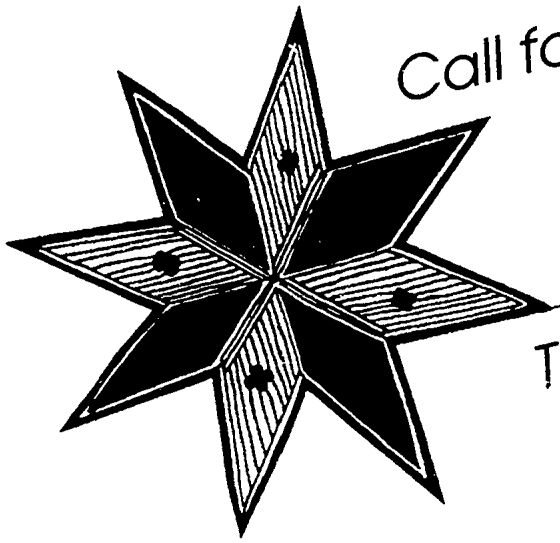

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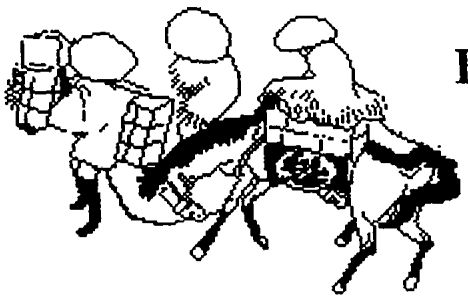

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ANNOUNCEMENTS

Summer Program for the Development of Intercultural Coursework at Colleges and Universities. July 15-24, 1992. The Institute of Culture and Communication, East-West Center, Honolulu, Hawaii. The workshop is for college and university faculty who wish to develop courses in intercultural and international topics. Participants will examine possible texts, discuss issues with authors of texts currently used in intercultural courses and become familiar with concepts that can be integrated into various courses. Courses can be developed in the social and behavioral sciences, language and culture, and international management. Contact: Richard Brislin, Institute of Culture and Communication, East-West Center, 1777 East-West Road, Honolulu, Hawaii 96848, U.S.A. Tel: (808) 944-7666. FAX: (808) 944-7970.

24th Annual International Summer Workshop for Teachers of English. August 9-14, 1992. Language Institute of Japan, Odawara. The Workshop offers participants a chance to be among a wealth of professionals with diverse teaching experiences ranging from kindergarten and university students to adult and refugee education specialists in the field of teaching English as a second or foreign language. The workshop will include over 55 presentations, language classes in English, and various social and cultural activities in an English-only environment. Featured presenters include: Kip Cates, John Fanselow, Colin Granger, Dale T. Griffee, Yoko Matsuka, Susan Stempleski, and Minoru Wada, along with special international scholars from Korea, Thailand and the Philippines. Contact: LIOJ, Asia Center, 4-14-1 Shiroyama, Odawara-shi, Kanagawa-ken 250, Japan. Tel:(0465) 23-1677. FAX: (0465) 23-1688.

15th International Congress of Linguistics. August 9-14, 1992. Quebec, Quebec. Contact: CIL92, P. Auger, Dept. des Langues et Linguistique, Universite Laval, Quebec, Quebec, Canada G1K 7P4. Tel: (418) 656-5323. FAX: (418) 656-2019.

2nd International Conference on Maintenance and Loss of Minority Languages. August 31-September 4, 1992. Noordwifkerhout, The Netherlands. Contact: Steunpunt Nederlands als Tweede Taal, Faculty of Letters, University of Louvain, Blijde Inkom-ststraat 7, 3000 Leuven, Belgium. Tel: (321) 628-5367. FAX: (321) 628-5025.

17th Annual Boston University Conference on Language Development. October 23-25, 1992. Featured speakers: George Miller, Princeton Unversity; Jean Aitchison, London School of Economics; Kenneth Hale, Massachusetts Institute of Technology. Contact: Boston University, Conference on Language Development, 138 Mountfort St., Boston, MA 02215, U.S.A. Tel: (617) 353-3085.

18th Annual JALT (Japanese Association of Language Teachers) Conference. November 20-23, 1992. Showa Women's University, Setagaya-ku, Tokyo. Contact: JALT Central Office, Shamboru Dai 2 Kawasaki #305, 1-3-17 Kaizuka, Japan. Tel: (0442) 45-9753. FAX: (0442) 45-9754.

TESOL 27th Annual Convention & Exposition. April 13-17, 1993. Atlanta Hilton and Radisson Hotel, Atlanta, Georgia. Contact: TESOL Inc., Conventions Department, 1600 Cameron St., Suite 300, Alexandria, Virginia 22314-2751, U.S.A. Tel: (703) 836-0774. FAX: (703) 836-7864.

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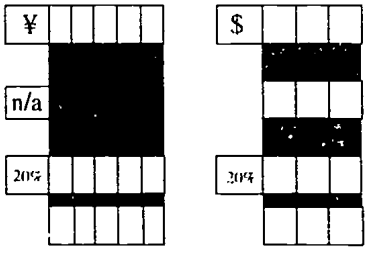

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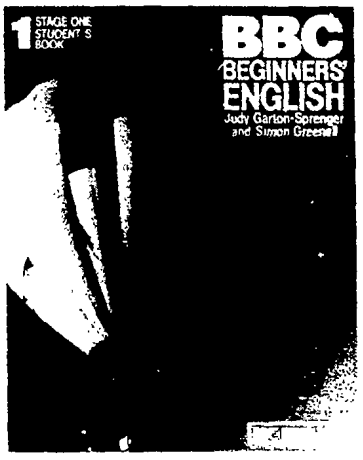

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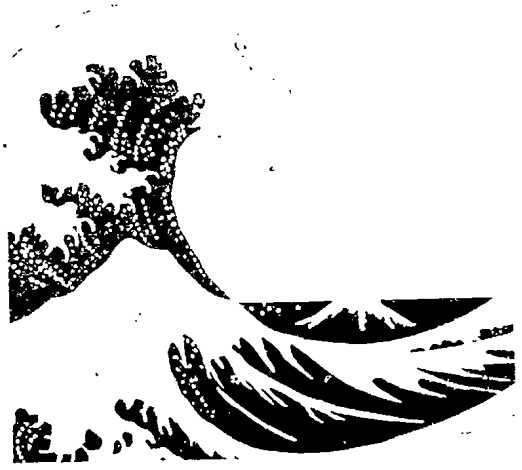

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